

The Milbank Memorial Fund
QUARTERLY

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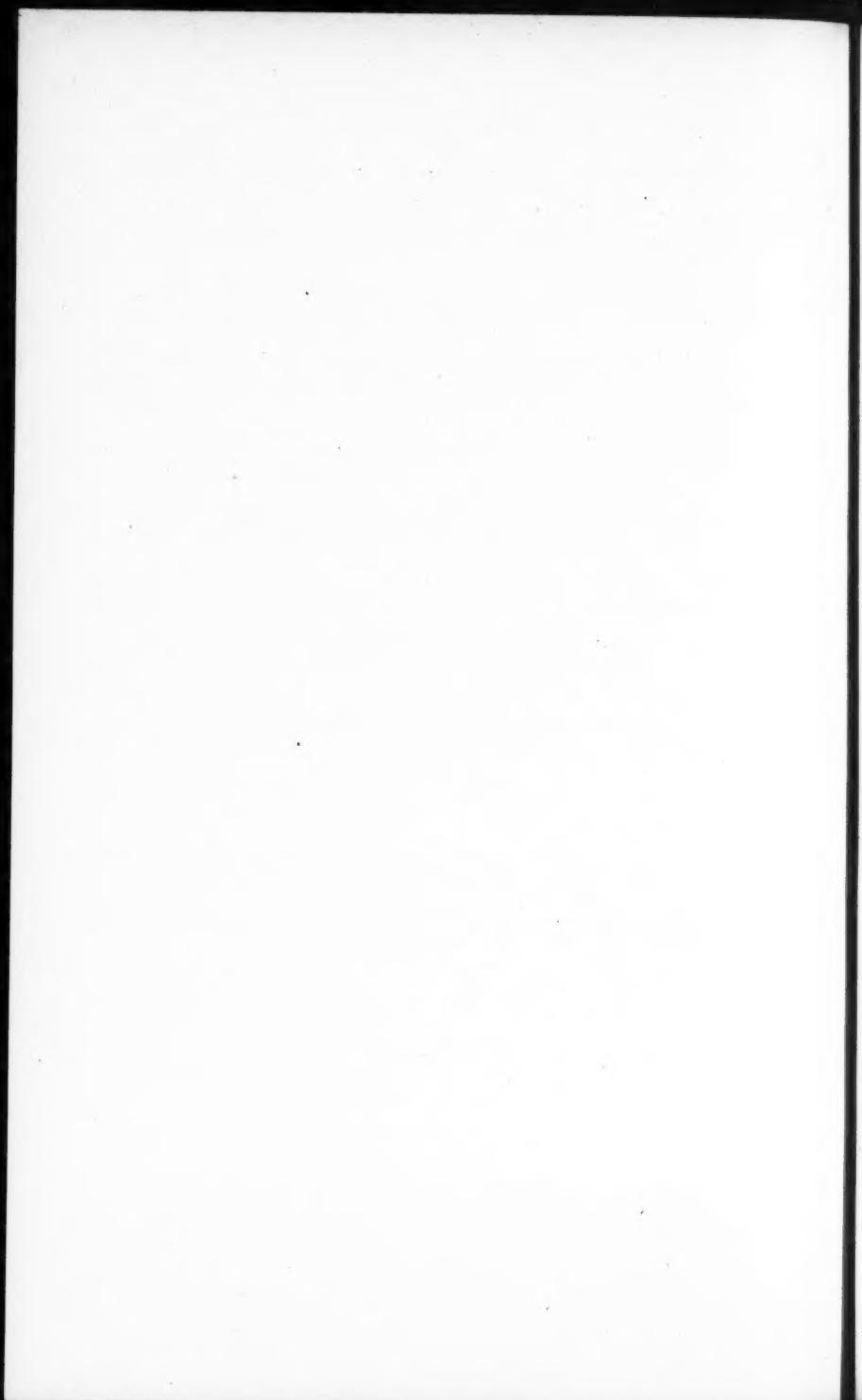
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IN THIS ISSUE

A REPORT of the discussions at the Round Table on Implications of Population Trends for Postwar Policy, held in 1943 as part of the Twenty-first Annual Conference of the Milbank Memorial Fund, has been prepared for this issue by Clyde V. Kiser. This round table was presided over by Frank W. Notestein and the discussions of specific topics were opened by speakers as follows: the demographic outlook (Chairman Notestein's introductory statement); implications of demographic trends in Europe and the U.S.S.R. (Frank Lorimer); implications of the demographic position of minority groups in Europe (Louis I. Dublin); implications of population trends in the Far East (Warren S. Thompson); needed factual bases for pronatalist policies (P. K. Whelpton); and considerations regarding programs of child security (T. J. Woofter, Jr.). Although space limitations permit little more than digests of these presentations, it is believed that the report appearing in this issue will be of interest to the *Quarterly's* reading audience.

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In an article "The Trend of the Birth Rate Among Persons on Different Economic Levels, City of New York, 1929-1942," Mr. Paul H. Jacobson of the New York City Department of Health adduces indications of recent reductions in the differential birth rate between economic groups of the City's white population. The health area is used as the basic unit of study and the average of the 1930 and 1940 median monthly rental values of occupied dwelling units in each health area is used as the basis of classification into five economic groups, ranging from "\$60 and Over" to "Under \$30." The margin between the annual birth rates of these two extreme classes decreased first as a result of greater declines in the rates for the latter group than for the former during the period of the depression. The later and more conspicuous contraction occurred in 1940 and subsequent years as a result of greater increases in birth rates among the "\$60 and Over" group than among the "Under \$30" group.

The uncertainties of population estimates for years following 1940 impose limitations on the data for the most recent years, but the general trend toward contraction of the economic differentials in fertility is in line with results of other investigations.

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The diagnostic clinic performs an important function in the program for the control of tuberculosis. It is concerned with the discovery and supervision of cases of the disease in the community which it serves. The report "Three Years' Experience in the Upper Harlem Chest Clinic" by Jean Downes and Neville C. Whiteman, M.D., evaluates work in tuberculosis case finding and describes the supervision of cases in one of the diagnostic clinics in New York City. This report is of special interest because it is an evaluation of certain activities of the clinic in terms of specific objectives; rather than a report of the volume of activities.

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The quality of diets is a matter of general interest at this time because of the importance of proper food in maintaining health during the emergency. The article "Food Habits of Families in the Eastern Health District of Baltimore in the Winter and Spring of 1943" by Jean Downes and Anne Baranovsky describes the diets of 943 families before and after the beginning of rationing of processed foods, meats, and fats. In 59 per cent of these families one or more members were engaged in defense work.

Analysis of the diet records according to the age of the housewife indicated that young families had better diets than did older families. A relatively high proportion of all families used an "unsatisfactory" amount of milk and had green or yellow vegetables less frequently than recommended. There was no evidence that rationing had an adverse effect upon the food habits of the family.

Comparison of the use of various types of foods by the same families at two different periods indicated considerable variation in use although there was some relationship between the levels of use in the two periods.

IMPLICATIONS OF POPULATION TRENDS FOR POSTWAR POLICY¹

CLYDE V. KISER

THE changing size and shifting distribution of the world's population will affect in some measure nearly every social, economic, and political problem to be dealt with in the post-war settlement. If that settlement is to be just and durable it is important that it take these demographic trends into account. At the 1943 Annual Conference of the Milbank Memorial Fund, one of the round tables was devoted to a discussion of the problem of policy in the light of demographic trends. The discussion began where the previous year's Conference left off. In 1942, the staff members of the Office of Population Research of Princeton University's School of Public and International Affairs presented some of the results of their research on demographic trends in Europe and the U.S.S.R. In 1943, the Population Round Table proceeded to a discussion of policy implications of population trends in those and other areas of the world.

INTERNATIONAL ASPECTS

The Demographic Outlook. Dr. Frank W. Notestein served as Chairman of the Round Table and in his opening remarks he reviewed briefly the outstanding demographic trends of the world. He mentioned first the eastward shift of population growth, a fact clearly apparent from the mapping of demographic data for Europe and the U.S.S.R. and from consideration of the demographic position of countries farther east.

Dr. Notestein interpreted the eastward trend of population increase in terms of the demographic impact of industrialization. To

¹A report of the discussions at the Round Table on Implications of Population Trends for Postwar Policy, held in connection with the Twenty-first Annual Conference of the Milbank Memorial Fund at The New York Academy of Medicine in New York City, April 14-15, 1943. For list of participants, see Appendix.

over-simplify the situation, past experience indicates that industrialization brings reductions in mortality before it brings declines in fertility. It is to this lag in the decline of the birth rate that we owe the phenomenal increases in population since the industrial revolution. Various areas of the world — even various countries of Europe — are in different stages of the growth phase. In countries of northern and western Europe, where industrialization began earliest and has been most intense, the growth phase has most completely run its course. Both birth and death rates are low and population decline is imminent.

Southern and eastern Europe are in an intermediate position. Birth rates were declining rapidly before the war and it is estimated that the period of rapid population growth in that area will come to an end by about 1970. Nevertheless, the outstanding problem for the immediate future is one of surplus population. Careful estimates have indicated something of the order of a 36 per cent increase in people of working age in eastern Europe during the next thirty years, and that in an area where industrial opportunity is limited and where farms are already small. It is believed that even now perhaps a third of the working population in agriculture could be moved from the farms in the region without seriously affecting total productivity. To complicate the problem still further, this area of small sovereignties has long been characterized by sharp cleavages along religious and political lines.

Farther to the east, the U.S.S.R. exemplifies another stage of demographic development, that of rapid growth. The U.S.S.R. is in a growth position somewhat analogous to that of western Europe in the nineteenth century. Its population with respect to age distribution and vital rates is structured to give rapid increase during the next thirty years under almost any conceivable circumstances. Even under assumptions of very sharp drops in birth rates, projection of the U.S.S.R. population yields an increase of around seventy-seven million between 1940 and 1970. This takes no account

of war losses but the results leave no doubt that the focus of European population growth will shift heavily eastward.

In the Far East we find large areas where the vital revolution has scarcely started. Here are vast populations, as in China, where high birth rates tend to be cancelled by high death rates. But there are also distinct situations indicative of heavy growth potential. India, with a modicum of reduction in mortality, piled up an increase of fifty million in the last decade. Japan, the most industrialized Oriental country, is now exhibiting nineteenth century western patterns of population change. The processes of urbanization, the declines in mortality and fertility, are similar to the situation in England in the earlier period. Population projections for Japan must be viewed with reservations. Future developments will depend greatly on the nature of the peace. Under reasonably good economic conditions following the war, the population might increase from about seventy-three million in 1940 to ninety-five million in 1970.

In general, according to Dr. Notestein, the problem in the crowded agrarian countries of the Orient, such as China, India, Java, and in a measure the Philippines, is that of avoiding an all-consuming growth of people. How can one modernize? How can one bring down fertility rates as fast as mortality rates? In short, how can one reduce mortality and also avoid a population that cannot be maintained? This is perhaps the major problem of the area.

Implications of Demographic Trends in Europe and the U.S.S.R. Dr. Frank Lorimer opened the discussion of policy implications of demographic trends in Europe and the U.S.S.R. He expressed the belief that there has been too great a tendency to relate population to static natural resources. Quite different conclusions may sometimes emerge if population is related to technological and cultural changes. For instance, the European part of the U.S.S.R. was overpopulated in 1925. It is not overpopulated now because industrialization has taken place.

Likewise, according to Dr. Lorimer, the present variations in demographic trend, economic activity, and culture are in large part the expression of differential impact of technological change. Dr. Lorimer emphasized that there were important exceptions but there was, nevertheless, some tendency for countries with lowest proportions of population dependent on agriculture to have advanced furthest in the development of democratic institutions and to have attained the greatest freedom from cultural and religious cleavages.

Dr. Lorimer pointed out that the resources of Europe as a whole are tremendous and if properly utilized and integrated could support the people at high and rising levels of living. Two outstanding difficulties are (1) the many sovereignties, and (2) the great regional contrasts in resources and technological development. Nevertheless, these difficulties must be overcome if there is to be future economic and political security in Europe, particularly in terms of its future relations with the Soviet Union. With this introduction, Dr. Lorimer presented the following propositions for discussion:

1. A closer economic and political integration of European nations is clearly indicated. This would make possible the development of public measures relating to economic stability, social security, and stabilization of population trends which have become imperative for nations with a mature technological economy.

2. The primary objective in the treatment of Germany should be the preparation of Germans for *cooperation on a basis of equality* in economic, political, and cultural activities. The conquest of Germany and the destruction of its criminal leaders are preliminary conditions of this preparation. After the destruction of present German military equipment, it will be virtually impossible, in view of present demographic and economic trends, for Germany to launch another war with any possibility of success *except* with the support of England, or the U.S.S.R., or the United States, or a

powerful Asiatic country. The effective cooperation of the four major United Nations would therefore eliminate the possibility of serious military menace by any future German regime.

3. The primary measures for the security of Europe, with respect to the U.S.S.R. are: (a) the creation of conditions that will promote the stable, progressive development of economic life in Europe, and (b) the closer political and economic integration of European nations.

4. The security of Europe and the U.S.S.R., as well as that of other nations, requires the formation of a world organization designed to provide collective security and promote economic and cultural progress.

5. It must be recognized that absolute free trade without governmental direction or control cannot be established in the modern world.

6. International measures should be taken (a) to stabilize the economic relations of the vast populations in areas of retarded economic development that must long remain largely dependent on the production of raw materials, and (b) to promote education, technological progress, appropriate industrial development, and the stabilization of population in such areas. The interests of the people of Asia, America, and ultimately of Europe, would be served by the greatest possible disentanglement of European governments from the prejudiced control of Asiatic affairs.

7. The adequate economic and political organization of Europe would make large-scale emigration unnecessary. On the other hand, freedom of movement within Europe is vitally important. More objective research, however, should be directed to all aspects of international migration. The United States should re-examine its policies with respect to migration from the standpoint of relation to the future development of this country, the progress of other nations, and the maintenance of world peace.

8. The formation of sound international policies and relations is

dependent on increased knowledge and freer cultural relations. No freedom is more vital than freedom from ignorance. A primary implication is the emphasis on all possible measures for the promotion of scientific research, technical and liberal education in all parts of the world, the free interpretation of experience, and the exchange of ideas.

With reference to future relations between the U.S.S.R. and Europe, Dr. J. B. Condliffe stated that there have been marked eastward shifts of population and industry within the U.S.S.R. To the extent that Russia faces eastward, the "security" argument for an integrated Europe loses some of its force. Dr. Condliffe also reminded the group that Great Britain is not simply a European island. It is the center of a world system that embraces about one-third of the world's population. The various dominions of Great Britain view with apprehension the prospect of England being swallowed up in the affairs of an "integrated Europe." Dr. Condliffe agreed that industrialization of certain European countries is indicated, but he stressed the importance of economic development of backward countries which are the areas of population growth, such as China and Latin America, as well as eastern and central Europe. In short, Dr. Condliffe emphasized that he was not arguing for a revival of the nationalistic Europe of the interwar period. He believed that considerable economic modification was needed but that this should be done within the structure of world organization.

Implications of the Demographic Position of Minority Groups in Europe. In opening the discussion of policy implications regarding minority groups in Europe, Dr. Louis I. Dublin stated that much could be learned from the U.S.S.R. regarding the treatment of minorities. No matter what sins the Soviet Government may be guilty of, it at least has had a consistent policy of permitting national cultural groups to retain their identity. He thought that it would not be possible to give independent status to every national group,

but in the postwar settlement the smaller nations must be given and guaranteed their national independence. There might be sound reasons for constituting federated states such as Czechoslovakia and Yugoslavia. In these circumstances, some degree of political autonomy must be granted to the constituent peoples along with basic rights of citizenship. Minorities must be given and guaranteed equal rights with other citizens of the countries in which they live.

Dr. Dublin also emphasized that the new nations or federations would need guidance. Any international organization entrusted with this function must have the power to enforce decisions. Part of this guidance would undoubtedly have to be directed toward making the minority groups themselves realize that rights are attended with obligations.

Dr. Dublin believed that the Jews present a special problem. He doubted that any sizable number of Jews would want to live again on German soil. Broad international cooperation will be needed for working out places for settlement of Jews. Retraining in industrial trades and farming will be needed and many will need the wherewithal to start a new life wherever the opportunity seems best.

A demographic consideration which will greatly relieve the problem of minorities is the right of a free migration from one country to another. Under any "Council of Europe" economic considerations would demand that the right of free movement be considered a basic right.

The final point made by Dr. Dublin was that minority difficulties flourish in an atmosphere of economic depression and discontent. The implication of this is that national boundaries should be set up in such manner as to make each country able to carry on an effective economic life. The setting of boundaries on this basis will, in many instances, eliminate the difficulties that would arise if purely nationalistic demands were to determine national boundaries.

Several exceptions were taken to Dr. Dublin's proposals. Dr. Lowell J. Reed suggested that before thinking in terms of an international authority to guarantee the "basic rights" of minority groups, we should be careful to define specifically the term "basic rights." He thought that the "basic rights" that could be protected by international authority would necessarily be very simple and primitive, but we need a clean-cut realization of what they are.

The Chairman thought that the policy implications flowing from the demographic and economic conditions in eastern Europe were somewhat different from the propositions suggested by Dr. Dublin. This region faces the prospect of substantial increase of population during the next thirty years. Its population is largely agrarian and the area has long been characterized by small sovereignties and by religious and cultural cleavages. In this type of setting it seems somewhat inadequate to give first emphasis to the problem of protecting "basic rights." The primary emphasis might better be given to programs for economic development. It was thought that industrialization would not only help to meet acute economic problems but that it would help to break up the racial and religious cleavages.

Objections were also raised to the proposition regarding free migration. It was contended that whereas wide areas of free migration within eastern Europe might be feasible, it is unrealistic to think in terms of free migration on a world basis. This problem was discussed in more detail by a later speaker.

Implications of Population Trends in the Far East. Dr. Warren S. Thompson spoke next on population trends in the Far East and their implications for the future. He stated that for more than twenty years a shift has been noticeable in the areas or regions of large population increase. Whereas prior to World War I the western and northern European peoples had long been increasing at a faster rate than most other peoples, since then they have grown slowly or have even failed to reproduce. During the interwar period

the regions of larger population increase shifted towards the East and the South. Poland, the Balkans, the Soviet Union, a number of Asiatic countries (notably Japan, India, Java, and the Philippines) and Central and South America became the areas of more rapid population increase.

Dr. Thompson agreed with the Chairman's earlier statement regarding the Malthusian dilemma in the Far East. Reminding the group that the population of India and Burma increased fifty-two million from 1931 to 1941, he stated that only a little in the way of reduced mortality rates would bring equally striking increases in China. Japan offers an example of growth and power potentials made possible by really substantial progress in industrialization and public health. Despite the apparent emergence of decline in the birth rate, estimates of a population of ninety to ninety-five million in Japan by the end of the century seem quite within the realm of reason.

The upshot, according to Dr. Thompson, is that in the next few decades we face the prospect of tremendous population growth in southern and eastern Asia, increases that may easily be numbered in the hundreds of millions. In contrast, that part of the white race which has previously dominated the economics of the world is going to become a smaller and smaller part of the world's population.

With such shifts in population growth and with increasing industrialization in the Orient, Dr. Thompson believed that new problems involving the distribution and use of the world's natural resources were almost certain to arise. He pointed out that Africa was largely unpeopled, that there were huge areas of possible settlement in the Dutch and British possessions of the Indies, and that Australia could support several times its present population at a relatively high level of living. One can safely predict the attitude of the Oriental people toward these relatively empty places. As the Orientals increase in numbers and get the power to use their re-

sources, what will be their reaction toward the continued possession of their lands by Western peoples?

These emerging problems of adjustment between population and natural resources need exploration. This is particularly urgent in view of the fact that a change in the industrial structure of a number of these now rapidly growing countries has already been taking place. These changes in growth and structure are dynamic and will demand a dynamic political and economic organization of international relations. Otherwise, the world will be unable to avoid repeated impasses where war seems the only way to change a situation "frozen" to the advantage of powers which were once highly dynamic, but which now prefer to maintain the status quo.

In conclusion, Dr. Thompson stated that we are going through a demographic revolution as regards the white man's position on this planet. We must face that. If we make the wrong choice, or if we choose to do nothing about it, we might conceivably find today's developments in Japan duplicated tomorrow in India or even in China.

Implications Regarding Postwar Problems of Immigration. Dr. H. P. Fairchild, who spoke on implications regarding postwar problems of immigration, stated that if anything can be certain about the Peace Conference it is that one of the prominent questions will concern the redistribution of population as a possible feature of peace adjustments. This question will take two main forms: 1. The repatriation of peoples who have been dislodged and dispersed by the exigencies of the war. 2. The attempt to secure relief for over-crowded nations by means of emigration.

Both of these are vital issues, not only because of their immediate and direct bearing upon problems of economic and emotional well-being, but because to a very large extent they underlie problems of a more definitely political and organizational character. Any workable and constructive plan for postwar international organization must take account of the population factors involved.

It is vitally important that the commission which represents the United States at the peace table have at its command the best expert knowledge and opinion on the whole range of population fact and theory. Among all the problems in this area none are more important than those concerning the effects of emigration and immigration upon the economic, political, social, and psychological conditions of the countries involved. Fortunately, some of the more important theories along these lines have been quite conclusively worked out, and are now accepted by the majority of the specialists in the field. Foremost among these is the principle that, in most of the countries involved, a steady, regular, anticipated emigration does not affect the long-time rate of growth or size of the country of source, nor does it increase the rate of growth of the country of destination. Consequently, it has no power of relieving the evils of overpopulation in countries of the former type, but it may have a very prejudicial effect upon the standards of living and economic conditions in the countries of destination. It will certainly have a profound effect on the ethnic composition of the latter countries.

Dr. Fairchild thought it highly likely that in the name of liberalism, emphatic demands will be made that immigration bars be lowered in this country and that relief to the overcrowded countries be offered through the channels of emigration. Such demands, he stated, are already manifesting themselves in certain quarters. They receive definite support from the consideration that we are fighting this war for the sake of democracy, the rights of the common man, the eradication of race prejudice, and the general recognition of human equality. If the findings of science were in accordance with unenlightened liberal sentiment, there might be no particular danger. Since this is not the case, it is essential that the peace negotiators be prepared to recognize, and to make clear to the world, that what may seem like a narrow or illiberal policy is really a liberal policy because it promises the greatest welfare for the greatest number of people over the longest stretch of time.

Dr. Fairchild's point of view in regard to free migration, therefore, was virtually the opposite of Dr. Dublin's. Dr. Philip M. Hauser believed that this, like other divergent points of view evinced in the meeting, was due largely to lack of agreement on a basic frame of reference for the discussion. He thought that if we predicated a strong international order after the war, that if we really had a world organization in an economic, political, and police-force sense, we could reach a lot of unanimity around the table as to how population and resources might be shuffled. If one wants the continuation of a nationalistic type of order, the old policies of excluding the Orientals and of blocking their attempts at industrialization are perhaps the answers.

Although members of the group agreed with Dr. Hauser that much depended on the type of world we have after the war, the point was made that nations with any autonomy will formulate their own policies regarding migration. They will also attempt strongly to make their own decisions regarding trade. But whatever is done regarding trade, the last thing that will be conceded to an international organization is the right to say who comes in and, perhaps, who goes out.

Dr. Condliffe believed that none of these population problems could really be discussed except on the thesis that the United Nations' victory is followed by a powerful world organization. He made the further point that possibly one of the best ways in which to deal with population pressure, particularly in Asia, is to encourage the freer flow of trade. He thought that ours would indeed be an untenable position if we not only shut out the laborers but also shut out the products of their labor. An expanding system of multilateral trade is essential to any plan for industrial development in areas of population pressure and is the most practical alternative to the elimination of migration restrictions.

Summary of Discussion of International Aspects. Without attempting to reconcile the varied opinions expressed at the meeting,

the Chairman summarized the first day's discussion with a general statement that to some extent indicates the level of agreement. The distribution of the world's population is obviously very different from that of its resources. This discrepancy between the distribution of population and resources is being intensified in some instances and alleviated in others by differences in rates of natural increase. There are three principal ways of relieving population pressure of an area: (1) modification of fertility, (2) migration, and (3) economic development. The first is a long and slow process. The second involves human hardship and political difficulties and can be effective only in some circumstances. In cases where fertility is rapidly coming under control, for instance, migration has the possibility of relieving strain and of tiding over the transitional period.

But it should be remembered that trade and industrialization stand in considerable complementary relation to movements of people, and that this complementary relation is becoming stronger as transportation becomes cheaper. Therefore, the fostering of economic development of backward areas might logically be one of the first things undertaken by way of relieving population pressures. This approach has the long-run advantage of setting up a train of social processes conducive to lowering mortality and fertility rates, and in that sense it tends to furnish a preventive as well as a cure. It was the consensus of the group that it would be extraordinarily difficult to work out on a strictly nationalistic basis the questions that world population problems will impose.

DOMESTIC ASPECTS

Needed Factual Bases for Pronatalist Policies. On the second day of our meeting attention was turned to studies of certain problems in this country. The United States is in the same line of demographic development as the western European countries. During 1935-1939 large rural sections were characterized by high birth rates but the rates were so low among urban populations that the net reproduc-

tion rate for the total country was only 0.98, a little below the requirements for permanent replacement through births.

It is a safe prediction that among western nations, including our own, there will be an intensified development of positive population policies during the next decade. In anticipation of this development, a group of students of population and psychology began, several years ago, a methodological study of the social and psychological factors affecting fertility. It was felt that we need more factual data than we now have if any attempt at pronatalist policy in this country is to be based upon something more than wishful thinking.

The field work for this investigation was carried out in 1941 in Indianapolis, under the direction of Professor P. K. Whelpton. Although the data are still in the coding and punch card stage, Professor Whelpton described briefly the setup of the study and presented a few preliminary results based upon hand counts.

The study was restricted to 1,080 married couples in Indianapolis with the following characteristics: husband and wife native white; both Protestant; married in 1927, 1928, or 1929; wife under 30 and husband under 40 at marriage; neither previously married; residents of a large city most of the time since marriage; and both at least elementary school graduates. Most of the analyses will relate to the 860 couples which were classified as fecund for purposes of the study.

The above restrictions were made mainly for methodological reasons. A relatively small total sample was dictated by the expensiveness of the intensive interviews; so it seemed wise to avoid the necessity of breakdowns by nativity, color, religion, years married, etc. Obviously, the sample was not intended to be representative of the United States nor even of the urban population. But it does in a measure represent a segment of the population having characteristics with respect to education, nativity, and perhaps of fertility that probably are going to be similar to those of the bulk line of our future population.

Professor Whelpton emphasized the highly preliminary and tentative nature of the few results he presented. There was, however, no mistaking the virtual universality of at least some contraceptive experience among the couples studied. The effectiveness of this practice in reducing fertility was apparently very large. The average fertility rate for the total group was well below the maintenance level.

Much work remains to be done with the motivational material. The few results presented by Professor Whelpton were based upon certain direct questions regarding the influence of specified factors on size of family. As Professor Whelpton explained, rationalization probably entered heavily in the replies to these questions and the results are subject to confirmation by more indirect types of materials still to be analyzed. The replies to certain direct questions, however, suggested that economic factors in relation to the aspiration level of the people are of importance.

Dr. Thompson said that the replies to questions intended to learn whether the couples felt any obligation to the community in the matter of family size were highly negative. He thought the results indicated that family size was a highly personal matter among this group and that the couples apparently attached little importance to "duty" towards the nation, church, family, or class, in matters of family size. He pointed out that the population policies in Germany, Italy, and Japan were calculated to instill these "duties" in the minds of the people. He recognized, however, that the replies to such questions might have been different had the couples in question been subjected to "duty" propaganda and that at all events only very tentative interpretation is warranted on the basis of the replies to direct questions alone.

Some Considerations Regarding Programs of Child Security. The Round Table proceeded from the consideration of preliminary fragments of factual material from the Indianapolis study to a closely related subject of a very practical nature. For some months

Dr. T. J. Woofter, Jr., Director of Research for the Office of the Administrator of the Federal Security Agency, has been working with representatives from a few other federal agencies on the general problem of postwar programs of child security. Our group was privileged to hear him describe some of the aspects of these studies.

Dr. Woofter stated that a few months previously some of the representatives of various federal agencies whose research programs touched rather closely problems of child welfare and child security decided to call an informal conference with the idea of tying together the products of research relating to this problem and of determining what type of postwar program in child security could be agreed upon as reasonably adequate and feasible for public acceptance. Several influences conspired to bring the group together. There was the feeling that after the war there would be a good psychological climate to consider programs of child security. There was also the growing belief that the existing social security system in this country gives security to the individual wage-earner in proportion to his wages and does not put sufficient emphasis on the family as a unit.

Dr. Woofter stated that he and his colleagues are not working toward the development of population policy *per se*. The common denominator of their interests is that of improving citizenship through child security. It amounts to interests in human conservation. He emphasized, however, that programs of child security might turn out to be either natalist or qualitative and that a series of policies might contribute to both roles.

Dr. Woofter stated that the existing sources of support and security for children could be classified under three general categories: (1) the family budget; (2) direct financial assistance to families; and (3) services furnished from the public exchequer. The first meets the majority of child needs. The second form is illustrated in a few European countries by cash allowances for children and by rent subventions. In this country it is best illustrated by allow-

ances to needy broken homes in which there are young children. The third general category is represented by expenditures for public schools, child health, etc.

Dr. Woofter stated that he and his colleagues are exploring the possible approaches through each of the three categories mentioned above. Much of the work has consisted of estimating costs of various kinds and degrees of services. He referred to one of the questions in the Indianapolis survey in which the respondents were asked the extent to which they would be encouraged to have another child if a "mother's wage" were paid for rearing children, beginning with \$15 per month for one child and rising to \$100 per month for five children. Dr. Woofter stated that if such a program were inaugurated on a nation-wide scale it would cost about 6.4 billion dollars and would immediately become a financial issue. To state the cost in another way, if allowances for children were reduced to \$10 per month, the total cost would be about 4 billion and it would take something a little larger than the 5 per cent Victory tax to finance the program on the basis of 1941 national income.

Dr. Woofter made it clear that he was not yet in a position to recommend specific measures. He raised the question, however, concerning the relative merits of cash disbursements and community services in kind. Dr. Woofter stated that he hoped the Department of Agriculture could work out for conference purposes a food-stamp plan based upon number of children rather than on financial necessity and on the provision of basic nutritive foods rather than on what happen to be surplus farm products.

The cost of really adequate programs raises questions regarding methods of financing, regardless of whether the benefits are in cash or kind. One possible approach might be the continuation of some type of pay-roll deduction. It is possible that public opposition to this would not be so great if it were understood that the tax is designed for child welfare and that it serves to remove some of the economic penalty of having children. In the nature of the case,

the benefits directly returnable to families either in the form of cash or community services would be proportionate to number of children.

Dr. Woofter estimated that the cost of the program could be cut in half if the benefits for the first child were eliminated. This type of elimination was provided in the Beveridge plan for England. It is readily feasible, however, only if we think in terms of cash benefits. Dr. Woofter believed that for pronatalist purposes it would be wise to encourage the first child, since couples having the first child early probably tend to have larger families.

With regard to a favorable "psychological climate" for instituting programs of child security after the war, Dr. Woofter mentioned that returning soldiers would probably be interested, for many of them will be confronted with the economic problem of rearing families already started by war marriages. Furthermore, the war losses and the possible deficit in births before the war is over may accelerate popular concern over our population trends.

On the other hand, we will have a tremendous national debt after the war and this will necessitate long years of high taxation. Whether an adequate program in child security is launched will depend on whether the country wants to "return to normalcy" or to go further in social legislation. Another item on the negative side is the danger that this type of program will run into bureaucracy. Dr. Woofter believed that one of the big questions in the postwar period will be that of centralization in Washington. He doubted that a large program of child security could be launched unless the states and localities are brought into the picture in a very real way.

Dr. Dublin commented on the relative merits of cash allowances and services. He stated that we know very little about allowances in this country except at the charity level but that we have had a lot of experience on the score of services. For thirty or forty years the country has built up, at least in certain areas, a sizable body of services in education and in public health. These services have been

extremely effective, at costs relatively small in comparison with the presumed expense of family allowances. He believed it would be wise to build on this experience rather than to gamble huge sums on family allowances.

There was a good deal of agreement with this general point of view but several reservations were voiced. It was pointed out that the line between cash and kind was often dim and that possibly some combination of the two might prove to be the answer. Furthermore, as Dr. Lorimer pointed out, much depended on the specific nature of the aims of child-security programs. For improvements in health and education *per se* one might conceivably give no consideration to family allowances. For inducements to larger families the evidence is not so clear. It may be that service expenditures for health, education, etc. would not only serve those ends but would simultaneously serve as inducements to larger families. Dr. Reed thought that if one agreed that society is going to pay part of the bill and the remainder is to come from the family budget, it is much better to leave to the family those elements that are as detailed as clothing. Services might even be extended to housing, for instance, without getting into the difficulties involved in trying to meet things like clothing.

The discussion of Dr. Woofter's paper formed an appropriate conclusion to our meetings. It brought to a head one of the assumptions underlying our entire session, that is, that in most western nations the rate of reproduction has declined to the point that we can virtually take for granted a postwar public concern over size of family and the welfare of existing children. At the same time, the aging of the population in the demographically advanced countries will tend to strengthen the political pressures behind the protection of the aged. There is indeed some danger that the services for the aged will be overemphasized to the detriment of the child groups on which our future society will depend. No one at our meeting questioned the desirability of developing more adequate programs

of child security. The discussion was concerned with methods of approaching the problem.

APPENDIX

PARTICIPANTS IN THE ROUND TABLE SESSION ON IMPLICATIONS OF POPULATION TRENDS FOR POSTWAR POLICY

Chairman: FRANK W. NOTESTEIN, *Director, Office of Population Research, Princeton University*

- BARKHUS, ARNE, *Milbank Memorial Fund*
- BOGGS, S. W., *Geographer, U. S. Department of State*
- CONDLIFFE, J. B., *Associate Director, Division of Economics and History, Carnegie Endowment for International Peace*
- DAVIS, KINGSLEY, *Office of Population Research, Princeton University*
- DEUTSCHMAN, S., *Milbank Memorial Fund*
- DUBLIN, LOUIS I., *Third Vice President and Statistician, Metropolitan Life Insurance Company*
- FAIRCHILD, HENRY PRATT, *Professor of Sociology, New York University*
- GOODRICH, CARTER, *Chairman, Governing Body, International Labour Office*
- GUTH, OTTO E., *Director of Research, Office of the Geographer, U. S. Department of State*
- HAUSER, PHILIP M., *Assistant Director, Bureau of the Census, U. S. Department of Commerce*
- HUTCHINSON, EDWARD P., *National Resources Planning Board*
- JURKAT, ERNEST H., *Office of Population Research, Princeton University*
- KIRK, DUDLEY, *Office of Population Research, Princeton University*
- KISER, CLYDE V., *Milbank Memorial Fund*
- KISER, LOUISE K., *Office of Population Research, Princeton University*
- KLEIN, PHILIP, *New York School of Social Work*
- LORIMER, FRANK, *Professor of Population Studies, The American University*
- LOTKA, ALFRED J., *Assistant Statistician, Metropolitan Life Insurance Company*
- ROSENBOG, A., *Economic, Financial, and Transit Department, League of Nations*
- REED, LOWELL J., *Dean, School of Hygiene and Public Health, The Johns Hopkins University*
- TAKUBER, IRENE BARNES, *Co-Editor, Population Index*
- THOMPSON, WARREN S., *Director, Scripps Foundation for Research in Population Problems, Miami University*
- WHELTON, P. K., *Associate Director, Scripps Foundation for Research in Population Problems, Miami University*
- WOOTER, T. J., JR., *Director of Research, Office of the Administrator, Federal Security Agency*.

THE TREND OF THE BIRTH RATE AMONG PERSONS ON DIFFERENT ECONOMIC LEVELS, CITY OF NEW YORK, 1929-1942

PAUL H. JACOBSON¹

FROM the time the question was first examined, studies have shown that the birth rate in the United States is inversely related to economic status. This inverse relationship has been found regardless of whether the index used is the general plane of living, income, rents paid by single families, or the average rental in given areas.²

While there has been extensive research concerning the factors affecting the birth rate and the differentials which exist between fertility and these factors, little evidence has been produced as to whether these differentials have been diminishing or increasing in recent decades.³

In 1936, Notestein, discussing the fertility of populations supported by public relief, concluded that "in New York City it was the well-to-do and those in comfortable circumstances, rather than the poor, who increased their fertility in 1934."⁴ Notestein's conclusions were based upon the number of births to white residents of each of the constituent health areas in the City during the period, 1930 to 1935, classified into three levels of economic status on the basis of median rentals paid by resident families as reported in the 1930 Census. In his study, Notestein pointed out the fact that he made no attempt to take into account the changes which occurred

¹ Statistician, Bureau of Records and Statistics, Department of Health, City of New York.

² For a summary of these studies, see National Resources Committee: PROBLEMS OF A CHANGING POPULATION. Washington, Government Printing Office, 1938, pages 136-138.

³ For recent data which would seem to indicate that the differential is diminishing, see Kiser, Clyde V.: GROUP DIFFERENCES IN URBAN FERTILITY. Baltimore, The Williams and Wilkins Co., 1942, especially page 244.

⁴ Notestein, Frank W.: The Fertility of Populations Supported by Public Relief. The Milbank Memorial Fund Quarterly, January, 1936, xiv, No. 1, pages 37-49.

since 1930 either in the size or the age distribution of the population, but based his conclusions on the assumption that no considerable movement had occurred from the cheapest to the more expensive areas.

In a somewhat similar manner, the present study will attempt to ascertain whether there has been any reduction in the differential in the birth rate between economic groups of New York City's white population during the period, 1929-1942.

GENERAL METHOD

The health area is the basic unit of study. Since the boundaries for a considerable number of health areas have been changed, the 1930 boundaries are used throughout this paper. Miscellaneous areas, such as parks, cemeteries, forts, and islands, have not been included.

To give weight to owner-occupied homes, since there are sections of the City where they constitute a large part of the available dwelling units, one per cent of their value was taken as the equivalent monthly rental. The median of monthly rentals of tenant-occupied units combined with the equivalent value of owner-occupied units is used as the measure of economic status.⁸ It should also be noted that the rental data pertain not to white but to total populations.

Rents changed radically from 1930 to 1940. In order to measure the economic status of a health area for the period, 1929-1942, the medians for 1930 and 1940 were averaged and the resulting values were used.

In deciding how to assign health areas to economic groups, the values of the medians for 1930, 1940, and the average of 1930 and 1940 were set up in a frequency distribution (Table 1). On the basis of the average for 1930 and 1940, areas having medians less than \$30

⁸ Median Monthly Rental, Health District and Health Area, New York City, 1930, Department of Health, City of New York, 1939 (mimeographed).

POPULATION AND HOUSING: STATISTICS FOR HEALTH AREAS, NEW YORK CITY, 1940. Washington D. C., Government Printing Office, 1942.

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were assigned as the lowest economic group, those with values \$60 or more as the highest, and all others to three intermediate groups with ranges of ten dollars each.

Since the health area is used as the unit of study, each was reviewed for extreme changes in economic status or for the introduction of new population groups and sixteen areas were eliminated. (See Appendix, Note 1.)

Classification of New York City's health areas (*see* Appendix, Note 2) into five broad levels of economic status discloses, as would be expected, large sections of the City where adjacent health areas are of approximately similar status as well as other parts where

Table 1. Distribution of 305 health areas¹ in New York City, by median of monthly rentals², 1930, 1940, and average of 1930 and 1940.

RANGE OF MEDIAN VALUES	NUMBER OF HEALTH AREAS ACCORDING TO		
	1930 Medians	1940 Medians	Average 1930 and 1940 Medians
\$15.00-19.99	6	7	4
20.00-24.99	12	40	24
25.00-29.99	26	29	24
30.00-34.99	11	45	21
35.00-39.99	17	57	36
40.00-44.99	31	41	36
45.00-49.99	27	50	35
50.00-54.99	26	20	38
55.00-59.99	29	6	39
60.00-64.99	39	1	18
65.00-69.99	24	3	15
70.00-74.99	21	2	4
75.00-79.99	10	1	1
80.00-84.99	10	1	3
85.00-89.99	3		1
90.00-94.99	1		
95.00-99.99	4		
100.00 or more	8	2	6

¹1930 health area boundaries, exclusive of miscellaneous areas such as parks, cemeteries, forts, and islands.

²Monthly rental value of tenant-occupied dwellings and one per cent of the value of owner-occupied dwellings.

the status of one area is markedly different from an adjoining one. It should be recalled that the average economic status of the white population⁶ is being measured for the period, 1929-1942. Therefore, it is possible for the actual economic status of the population within a health area assigned to one of the five groups to vary from the most wealthy at one end to borderline or poverty stricken at the other, and to improve or deteriorate during the period of study. It should also be noted that the differences between one area and another may result from an extreme weighting of some very high or very low income families in the midst of a majority of the population who are in comfortable circumstances. Nevertheless, for the areas taken collectively, the different levels of economic status probably reflect differences in the average economic status of their populations.

The poorest areas (group V) are predominantly those which have become known as the "blighted" areas — East Harlem, the Lower West Side and the Lower East Side of Manhattan, and the Greenpoint section of Brooklyn. These areas are rapidly losing

⁶ The use of the average of the 1930 and 1940 medians for the total population as the measure of economic status for the white population may raise questions concerning its validity in the Harlem Health Areas. Of the nine health areas in the East Harlem Health District which are included in the study, five were assigned to the lowest economic group (all are located east of Third Avenue); three to economic group IV and one, to group III (located between Park and Fifth Avenues from 91st Street to 105th Street). On the basis of general information, these areas would appear to be properly classified.

Seven health areas located in the Central Harlem Health District were included in the study. The two areas which were assigned to economic group IV were apparently properly classified. On the other hand, the inclusions of Health Area 10 in economic group II and of Health Areas 8, 12, 19, and 24 in economic group III have a negligible effect, if any, since their white residents comprised relatively small percentages of the total white populations in those economic groups. This is shown in the following table:

ECONOMIC GROUP	PERCENTAGE OF POPULATION IN ECONOMIC GROUP FROM CENTRAL HARLEM HEALTH AREAS	
	1930	1940
	Per Cent	Per Cent
II	0.02	0.01
III	2.27	0.38

population. The well-to-do areas (group I) range from the "silk stocking" district of Manhattan, adjoining Central Park, to the most recently developed residential sections of the City — Riverdale in The Bronx; parts of Jamaica, Forest Hills, Corona, and Rockaway in Queens; and Flatbush in Brooklyn.

TREND OF THE BIRTH RATE

As can be seen from Table 2, the percentage change in the number of white births reported for each group from 1929 to 1942 was inversely related to their economic status but directly related to their gain or loss of adults of childbearing age. However, changes in the number of births reported for each group did not occur uniformly during the period (*see Table 3*).⁷

As the first step in investigating whether the birth rate in New York City has started to change to a more direct relationship with economic status, birth rates per 1,000 total white population were computed for each of the five economic groups.⁸ The following results were obtained for 1930 and 1940:

Economic Group	1930	1940	Decrease
I (High)	13.3	11.9	1.4
II	17.9	14.1	3.8
III	17.6	14.0	3.6
IV	17.6	14.1	3.5
V (Low)	18.6	13.9	4.7
Differential (I and V)	5.3	2.0	—

It should be noted that the usually found inverse relationship is not apparent even for 1930, unless groups II, III, and IV are con-

⁷ Tabulated from: *Vital Statistics by Health Area and Health Center District*, Bureau of Vital Records and Statistics, Department of Health, City of New York, annual reports.

Starting with 1942, statistics by health area are being tabulated by 1940 health area boundaries which are not strictly comparable with data for previous years. In adjusting 1940 white population aged 15-44 years from 1940 to 1930 health area boundaries, the data by economic group had to be corrected for less than 2,000 persons. The use of white births for 1942 according to 1940 health area boundaries, therefore, is not expected to bias its comparability with data for previous years.

⁸ The 1930 and 1940 census data were used to estimate, by arithmetic progression, the population for each of the years, 1929-1942, which are used in this paper.

ECONOMIC GROUPS	ESTIMATED WHITE POPULATION						TOTAL NUMBER OF WHITE BIRTHS		
	Childbearing Ages			Non-Childbearing Ages			1929	1942	Percentage Change
	1929	1942	Percentage Change	1929	1942	Percentage Change			
(High) I	572,764	680,785	+18.9	449,144	622,040	+38.5	13,636	20,011	+46.8
II	966,201	1,134,486	+17.4	769,632	998,436	+29.7	31,516	38,446	+22.0
III	791,687	765,810	-3.3	664,351	718,106	+8.1	26,079	24,511	-6.0
IV	571,568	525,979	-8.0	510,568	514,723	+0.8	19,417	16,058	-17.3
(Low) V	468,937	385,707	-17.7	459,159	377,884	-17.7	18,641	11,985	-35.7

Note: Childbearing ages taken as 15-44 years of age.

Table 2. Estimated white population of childbearing ages and of non-childbearing ages, and total number of white births, by economic group, City of New York, 1929, 1942, and percentage change from 1929 to 1942.

sidered as one intermediate group. However, there is evidence that a reduction in the differential has occurred. This finding is even more apparent on the basis of the annual rates for the entire period.

Could changes in the age composition of the groups have produced these results? Examination of the data in Table 2 indicates the fact that changes have occurred. For example, the white popula-

Table 3. Number of white births by economic group, City of New York, 1929-1942.

YEAR	ECONOMIC GROUPS				
	High I	II	III	IV	Low V
1929	13,636	31,516	26,079	19,417	18,641
1930	13,924	31,579	25,715	18,989	17,007
1931	13,034	29,875	24,317	18,079	15,537
1932	12,618	27,638	23,081	17,257	14,804
1933	12,094	26,241	21,256	15,893	13,986
1934	12,437	26,538	21,147	15,266	12,382
1935	12,812	26,340	20,649	15,411	11,819
1936	12,564	25,693	20,102	15,312	11,532
1937	13,152	27,094	20,777	15,311	11,242
1938	13,401	27,342	20,174	14,924	11,445
1939	13,729	27,551	20,187	14,519	11,061
1940	14,939	29,140	20,689	14,715	10,967
1941	16,197	31,676	21,775	14,984	11,195
1942	20,011	38,446	24,511	16,058	11,985

YEAR	ECONOMIC GROUPS				
	High I	II	III	IV	Low V
1929	572,764	966,201	791,687	571,568	468,937
1930	581,073	979,146	789,697	568,061	462,534
1931	589,382	992,091	787,707	564,554	456,131
1932	597,691	1,005,036	785,716	561,048	449,729
1933	606,001	1,017,981	783,726	557,541	443,327
1934	614,310	1,030,926	781,735	554,034	436,925
1935	622,619	1,043,871	779,744	550,527	430,522
1936	630,928	1,056,816	777,754	547,020	424,120
1937	639,239	1,069,761	775,763	543,513	417,718
1938	647,548	1,082,706	773,773	540,006	411,316
1939	655,857	1,095,651	771,782	536,499	404,913
1940	664,167	1,108,596	769,791	532,992	398,512
1941	672,476	1,121,541	767,801	529,485	392,109
1942	680,785	1,134,486	765,810	525,979	385,707

Table 4. Estimated white population aged 15-44 years, by economic group, City of New York, 1929-1942.

tion of both childbearing and non-childbearing ages in the lowest economic group (V) has shown the same percentage loss (17.7 per cent) from 1929 to 1942. On the other hand, the areas in the highest economic group (I) have shown the greatest percentage increase for all ages of the population. To allow for changes in age composition, the ratio of total white births to 1,000 white persons aged 15-44 years⁹ was computed. These ratios are shown in Table 5 and Figure 1.

It is apparent from the data that the birth ratio was inversely related to economic status until 1934, but that thereafter the relationship fluctuated among the lower economic groups — by 1942, there was a more direct relationship between the birth ratio and economic status.

⁹ In order to adjust the 1930 census data for persons reported with "age unknown," it was assumed that no person less than 15 years of age was so reported. The number of white persons reported with "age unknown," therefore, was pro-rated to the white population aged 15 years or more.

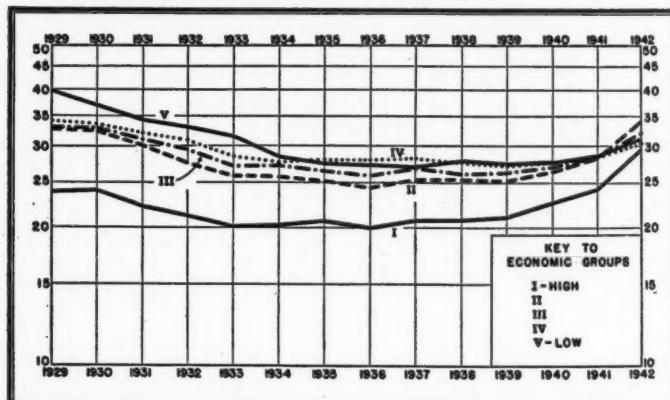
The estimates of the white population aged 15-44 years, by economic group, are presented in Table 4.

YEAR	ECONOMIC GROUPS				
	High I	II	III	IV	Low V
1929	23.8	32.6	32.9	34.0	39.8
1930	24.0	32.3	32.6	33.4	36.8
1931	22.1	30.1	30.9	32.0	34.1
1932	21.1	27.5	29.4	30.8	32.9
1933	20.0	25.8	27.1	28.5	31.5
1934	20.1	25.7	27.1	27.6	28.3
1935	20.6	25.2	26.5	28.0	27.5
1936	19.9	24.3	25.8	28.0	27.2
1937	20.6	25.3	26.8	28.2	26.9
1938	20.7	25.3	26.1	27.6	27.8
1939	20.9	25.1	26.1	27.1	27.3
1940	22.5	26.3	26.9	27.6	27.5
1941	24.1	28.2	28.4	28.3	28.6
1942	29.4	33.9	32.0	30.5	31.1

Table 5. Ratio of total white births to 1,000 estimated white population aged 15-44 years, by economic group, City of New York, 1929-1942.

From 1930 to 1933, all groups experienced approximately parallel declines. However, the sharp declines of the lowest economic group

Fig. 1. Actual ratio of total white births to 1,000 estimated white population aged 15-44 years by economic group, City of New York, 1929-1942.



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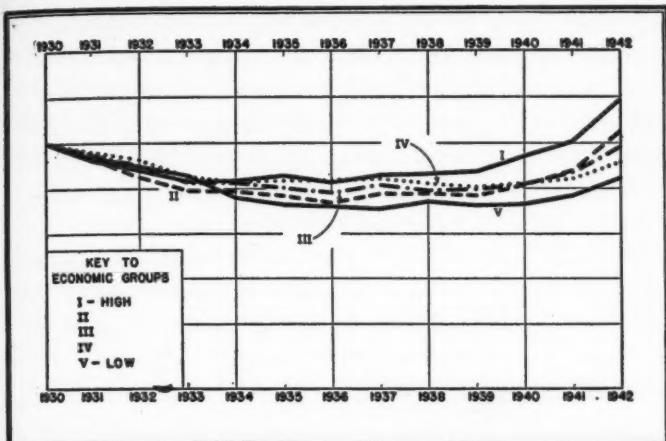


Fig. 2. Relative change in the birth ratio¹ among economic groups, City of New York, 1930-1942. (Semi-logarithmic scale, with 1930 points superimposed.)

¹Ratio of total white births to 1,000 estimated white population aged 15-44 years.

during both 1930 and 1934—the depths of the depression—resulted in a decrease in the range of the birth ratios between the two extreme economic groups from 16.0 in 1929 to 8.1 in 1934, or by almost 50 per cent.

During the next five years, through 1939, the continued downward trend for the four lower economic groups, together with the reverse trend for the well-to-do, though slight in either direction, resulted in a further reduction of 20 per cent in the differential.

From 1940 on, all groups recorded marked increases in their birth ratios, the extent of the increases being in direct relationship to economic status. As a result, in 1941, there was practically no difference in the ratios between the four lowest groups. In 1942, the ratios for groups II and III were above those for groups V and IV—the well-to-do (group I) having almost erased the differential between them and the underprivileged (group V).

The ratio for the lowest economic group was significantly greater than those for the intermediate groups during the first five years,

but thereafter fluctuated at the level of groups III and IV. On the other hand, the differential between the highest economic group and the next more fertile group was consistently greater than the differential between any other two adjoining groups. The differential, however, was reduced during each succeeding year and, as has already been noted, was practically erased in 1942.

The findings for the five economic groups can, perhaps, be better evaluated by means of Figure 2 and Table 6 for the period, 1930-1942. The Department of Health questions the accuracy of their tabulation of births by health area for 1929. Since the inclusion of the figures for that year would emphasize the apparent reduction in the differential, they have been omitted in this re-evaluation of the problem.

In order to compare the relative rate of change of the birth ratios of the five groups, Figure 2 was constructed by tracing the individual trend lines of Figure 1 from a common point for 1930. Three

Table 6. Percentage change of ratio of total white births to 1,000 estimated white population aged 15-44 years, by economic group, City of New York, 1930-1942 (base year—1930).

YEAR	ECONOMIC GROUPS				
	High I	II	III	IV	Low V
1930	0.0	0.0	0.0	0.0	0.0
1931	-7.9	-6.8	-5.2	-4.2	-7.3
1932	-12.1	-14.9	-9.8	-7.8	-10.6
1933	-16.7	-20.1	-16.9	-14.7	-14.4
1934	-15.8	-20.4	-16.9	-17.4	-23.1
1935	-14.2	-22.0	-18.7	-16.2	-25.3
1936	-17.1	-24.8	-20.9	-16.2	-26.1
1937	-14.2	-21.7	-17.8	-15.6	-26.9
1938	-13.75	-21.7	-19.9	-17.4	-24.5
1939	-12.9	-22.3	-19.6	-18.9	-25.8
1940	-6.25	-18.6	-17.5	-17.4	-25.3
1941	+0.4	-12.7	-12.9	-15.3	-22.3
1942	+22.5	+5.0	-1.8	-8.7	-15.5

definite facts are disclosed by this method of presentation. First, the lowest economic group (V) declined most rapidly from 1933 to 1934 and never regained this loss. Secondly, from 1936 on, the highest economic group (I) consistently experienced the greatest rate of increase. Finally, the rates of increase or decrease for the period are directly related to economic status; the two highest economic groups having net gains in 1942 as compared with 1930 and the other three groups net losses.

These facts may also be seen quantitatively from Table 6, which shows the percentage change of the ratios, using 1930 as the base year.

LIMITATIONS

Throughout the fourteen years studied, there were only minor differences between the ratios of the three intermediate groups — possibly indicating that the index of economic status is not sufficiently sensitive to differentiate between them or reflecting the fact that no true differential exists.

It is also possible that migration within the City may have caused greater changes than are allowed for by the elimination of only sixteen health areas. In order to examine this possibility, all 305 health areas (exclusive of miscellaneous areas) were ranged according to their 1940 medians and divided into three groups with populations approximately equal to those of the highest economic group (I), the intermediate groups (II, III, IV) and the lowest (V). The 1940 birth rates per 1,000 total white population for the three groups, so established, and the 1930 rates for three groups of health areas constructed by taking an equal number of areas per group in the order of the 1930 medians are as follows:

Rental Group	1930	1940	Decrease
High	13.0	11.9	1.1
Intermediate	17.4	13.8	3.6
Low	18.6	14.3	4.3
Differential	5.6	2.4	—

It is apparent that the lower rental groups had the greater decreases from 1930 to 1940, and that the differential between the groups was reduced.

Finally, even had the economic status of some health areas changed from one group to another during the period, the findings would not be seriously affected. As long as the economic status of any health area did not change from the lowest to the highest group or vice versa (and this possibility has been excluded by eliminating health areas if the rank of their medians changed 60 or more from 1930 to 1940), the conclusions would still be valid.

One might also be tempted to interpret partially the rapid decline in the fertility of the lower economic groups as the effect of changes in the age composition of the groups. This is possible under the assumption that the foreign born constituted a larger proportion of the populations in the lower economic groups than in the high.

The data presented below afford an approximation of the effects of the changes in the age composition within the 15-44 year age span between the economic groups. The data for the "high" group are based upon the 15-44 year population in four health districts, which had all but one health area of 38 included in economic groups I and II, while those for the "low" group are based upon the population of a similar number of health districts which had all but five health areas of 45 included in economic groups IV and V. The non-white populations, in 1940, were less than 2 per cent for either group. The age distributions, based upon populations of approximately one-half million persons, are as follows:

GROUP	PER CENT OF TOTAL AGED 15-44					
	1930			1940		
	15-24	25-34	35-44	15-24	25-34	35-44
"High"	32.8	37.5	29.7	29.5	36.7	33.8
"Low"	37.8	31.3	30.9	37.4	33.6	29.0

Judging from these data, it would appear that there had possibly been a more pronounced aging of the population among the higher than among the lower economic groups. It does not seem probable, therefore, that the reduction in the differential between the groups can be interpreted even partially in terms of variations in the age distribution of the economic groups.

There is no way of judging the extent to which the year to year fluctuations of the birth ratios are affected by population changes not in accord with the population estimates that are used. For the period 1930 to 1940, the annual changes are assumed to be equal to one-tenth of the total changes for the ten-year period. However, it is possible that the net changes for the decade resulted from markedly different patterns; the population of any one group might have experienced a sharp decrease for several years followed by an even greater increase during the remaining years of the period in contrast to the population of another group which might have experienced increases followed by decreases. If such population changes did occur, the fluctuations of the birth ratios would be different.

For the post-censal years (1941-1942), there is even less justification for the population estimates used. For example, on the basis of the number of registrations for War Ration Book One, it would appear that New York City's population in May, 1942, was more than 5 per cent less than it was at the time of the 1940 Census. Nevertheless, the population estimates used for computing the 1941 birth ratios seem to be justified. First, it was not until after the declaration of war, in December, 1941, that any considerable number of New York City's potential fathers was inducted into the armed forces or found employment in neighboring cities or states. Secondly, many of these families have continued to maintain their homes in the City during the temporary absence of their male members.

Because of the accelerated intra and inter-city movement of the

population following "Pearl Harbor," nothing short of a census enumeration would afford reliable population estimates for 1942. However, the 1942 birth ratios seem to follow the trend of the previous years and have therefore been included.

Finally, there can be no question concerning the accuracy of the population estimates for 1930 and 1940. How would the results be affected if the present investigation was restricted to these two years? Combining the three intermediate groups, the birth ratios are as follows:

<i>Economic Group</i>	<i>1930</i>	<i>1940</i>	<i>Decrease</i>
High (I)	24.0	22.5	1.5
Intermediate (II, III, IV)	32.6	26.8	5.8
Low (V)	36.8	27.5	9.3
Differential	12.8	5.0	—

It is evident that the decreases were inversely related to economic status — resulting in a reduction of the differential from 12.8 in 1930 to 5.0 in 1940.

CONCLUSIONS

There is strong evidence from the data examined that the differential in the birth rate between economic groups of New York City's white population was reduced. It would also seem possible, should the forces at work prior to the war continue, for the birth rate to be approximately related to economic status in the post-war era.

Reduction of the differential for New York City's white population would not be expected to have occurred as an isolated incident. Rather, it would appear more likely that it is part of a trend which can be expected in many of the large cities which have previously experienced sharp decreases in the fertility of their higher income groups.

In speculating on why birth rates have been inversely related to economic status, it is of interest to quote Notestein's opinion.⁴ "This

[the inverse relationship] does not mean that the poor have many children and the comfortable and well-to-do few children simply because of their respective incomes. The income status affects and is doubtless affected by an entire complex of living standards, attitudes, and customs which are the important factors in determining fertility. A sudden loss of income, even if sustained for several years, is not likely to change established attitudes and standards of one income group to those characteristic of a poorer and more fertile group. Whatever the standard of the group, loss of income means that for that group new babies are a heavier burden than before. The lines of interest set up would therefore lead one to expect a reduction in the fertility of any group in which voluntary control plays a significant part." The fact that the birth ratios of all groups decreased markedly during the depths of the depression (Figure 1) would seem to confirm this argument. That it was true for all groups might indicate that a fairly large proportion of the individuals in New York City know how to control fertility and make varying use of this knowledge. Deliberate control of births would also seem to be indicated by the fact that, following improved economic conditions in 1939 and the imminence of conscription in 1940, all groups increased their birth rates.

Probably the most significant finding from the data is the fact that, following the depression years, the birth ratio of the lowest economic group continued to decline and thereafter remained at a lower level.

Contrary to the belief of many persons during the past decade, no evidence has yet been produced to indicate that families supported by public relief increased their fertility after going on relief.²⁰ It may even be possible that the great depression, which brought many of these families under the influence of public and private

²⁰ Sydenstricker, Edgar and Perrott, G. St. J.: Sickness, Unemployment, and Differential Fertility. *The Milbank Memorial Fund Quarterly*, April, 1934, xii, No. 2, pages 126-133. Stouffer, Samuel A.: Fertility of Families on Relief. *Journal of the American Statistical Association*, September, 1934, xxix, No. 187, pages 295-300.

Frank W. Notestein, *previous citation*.

social welfare agencies, introduced forces which have resulted in a lowered fertility among these families.

That attitudes and customs have changed among the higher income groups seems evident from the fact that their birth rates have shown the greatest increases since the depression. While they may not continue at their present levels, it is quite possible that the higher income classes will contribute to the future population more nearly in proportion to their economic ability than they have in the past.

APPENDIX

Note 1.

In addition to the miscellaneous areas, the areas eliminated from the study are: health area 13.10 in The Bronx, eliminated because of the opening of "Parkchester" in 1940; health areas 26 and 80 in Manhattan, 8 and 41 in Brooklyn, and 7 in Queens, eliminated because of the opening of public housing projects which introduced populations constituting one-fifth or more of the population reported in the 1940 Census; and health areas 15, 39, 46, 49, 50, 52, 54 and 56 in Manhattan, 12 in Brooklyn, and 8 in Queens, eliminated because in each the rank of the median changed 60 or more from 1930 to 1940.

Information concerning public housing projects, including the name, boundaries, opening date, and population as of December, 1941, was obtained through the courtesy of Catherine F. Lansing, Management Division, New York City Housing Authority, December, 1942, and for the Metropolitan Life Insurance Company's residential community, "Parkchester," from news releases.

In order to determine whether the elimination of these health areas had any significant effect on the birth rate for the remaining 289 areas, birth rates per 1,000 total white population for the entire City, for the total of 305 areas, and for the total of the 289 areas were computed for each year. No marked differences were found between the three sets of rates.

Note 2.

Identification of 289 health areas in New York City included in study by economic group:

<i>Economic Group and Range of Medians</i>	<i>Borough</i>	<i>Health Area (1930 boundary)</i>
I (\$60.00 or more)	Manhattan:	3, 5, 6, 18, 23, 31, 32, 34, 35, 36, 40, 41, 48, 53, 57.
	The Bronx:	1, 14.10.
	Brooklyn:	45, 49, 53.20, 71.10, 71.20, 72.10, 72.20, 73.10, 73.20, 74.20, 76, 79, 85.10, 87.10, 88.10.
	Queens:	6.20, 10.10, 13.10, 13.20, 14.20, 19, 21.10, 21.20, 26, 28.10, 28.20, 29, 35.10, 35.20, 37, 38.
II (\$50.00 to \$59.99)	Manhattan:	1, 2.10, 2.20, 4, 7, 9, 10, 61.
	The Bronx:	2, 3, 4.10, 4.20, 5.10, 5.20, 6.10, 6.20, 7, 8.10, 8.20, 9, 12, 14.20, 15, 16, 22.10, 22.20, 23, 30.10, 30.20, 31, 32.10, 33.10, 33.20.

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	Brooklyn:	23, 29, 48, 50, 53.10, 54, 55.10, 55.20, 58.10, 67, 68, 70, 74.10, 78.10, 78.20, 81.10, 81.20, 83, 84, 85.20, 86.10, 87.20, 88.20, 91.
II \$50.00 to \$59.99 (continued)	Queens:	1.10, 2, 6.10, 9, 10.20, 11, 12, 14.10, 18.10, 18.20, 20, 25, 27, 31, 32, 35.30.
	Richmond:	3, 6.
	Manhattan:	8, 12, 14, 19, 24, 27, 28, 47.
	The Bronx:	10, 13.20, 17, 19, 20, 21, 25, 27, 29, 30.30, 35, 36, 37, 38, 42, 43.
III (\$40.00 to \$49.99)	Brooklyn:	5, 13, 20, 27, 28, 30, 38, 39, 46, 58.20, 63, 64.10, 64.20, 66, 69, 75.10, 75.20, 77, 80.10, 80.20, 82, 86.20, 89, 90.
	Queens:	1.20, 3, 4, 5, 15, 17, 24, 30, 33, 34, 36.10, 36.20.
	Richmond:	2, 4, 5, 7, 8, 9.
	Manhattan:	11, 13, 16, 20, 25, 29, 37, 38, 42, 44, 59, 64.
	The Bronx:	11, 18, 24, 26, 28, 32.20, 34, 39, 40, 41, 44, 45, 46, 47.
IV (\$30.00 to \$39.99)	Brooklyn:	6, 18, 19, 21, 24, 25, 26, 31, 34, 35, 36, 37, 42, 47, 51, 52, 56, 57, 60, 61, 62, 65.
	Queens:	16, 22, 23.
	Richmond:	1.
V (Less than \$30.00)	Manhattan:	17, 21, 22, 30, 33, 43, 45, 51, 55, 58, 60, 62, 63, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79.
	Brooklyn:	1, 2, 3, 4, 7, 9, 10, 11, 14, 15, 16, 17, 22, 32, 33, 40, 43, 44, 59, 64.30.

THREE YEARS' EXPERIENCE IN THE UPPER HARLEM CHEST CLINIC¹

JEAN DOWNES AND NEVILLE C. WHITEMAN, M.D.

THE diagnostic clinic performs an important function in the program for the control of tuberculosis. It is concerned with the discovery and supervision of cases of the disease in the community which it serves. This report describes some results of the work of the Upper Harlem Chest Clinic of the New York City Health Department during the clinic's first three years of operation, from April 1, 1939 to March 31, 1942. At the time this study was made the Upper Harlem Chest Clinic served a population of approximately 66,000 in the part of Harlem formerly included in Health Areas 7 and 8.²

When the Upper Harlem clinic was opened a special study of tuberculosis was started in Area 8. The special study is being carried on by the Bureau of Tuberculosis of the Department of Health, the Community Service Society, and the Milbank Memorial Fund. Its main objective is to describe as completely as possible the problem of tuberculosis among Negroes in this area and to point the way toward improvement in the control of the disease.

Dr. Herbert R. Edwards, Director of the Bureau of Tuberculosis, is the medical director of the study. The medical staff of the tuberculosis clinic, under the direction of Dr. Neville C. Whiteman, is

¹ From the New York City Department of Health, the Community Service Society, and the Milbank Memorial Fund.

Acknowledgments are made to Mrs. A. G. Gibbs, formerly of the Milbank Memorial Fund, and to Mrs. Carolina MacMillan, of the Community Service Society, for assistance in coding and tabulating the data of this report.

An especial acknowledgment is made to Dr. Allen Kane, Director of Tuberculosis in the New York City Department of Hospitals for permission to use for statistical purposes records at Harlem Hospital; to Dr. I. Magalaner, Superintendent of Harlem Hospital in 1940; and to Miss Mary Lloyd, Director of Social Service of the Tuberculosis Division of Harlem Hospital for their cooperation in obtaining data concerning examination of contacts in tuberculous families under the supervision of the hospital tuberculosis clinic.

² From Census Tract Data on Population and Housing, New York City, 1940. Bureau of the Census, U. S. Department of Commerce.

provided by the Department of Health. The Community Service Society provided the nursing and clerical staffs of the clinic from April 1, 1939 until December 1, 1941 and nursing supervision until October 1, 1942. Since that time the entire staff of the tuberculosis clinic has been provided by the Department of Health.¹

The diagnostic clinic is concerned with the supervision of known cases of tuberculosis and the discovery of new cases of the disease. In addition to the regular diagnostic service, the Upper Harlem Chest Clinic includes in its activities a Consultation Service for the use of private practitioners wishing to refer cases for a diagnosis of tuberculosis.

The examination of persons who have had household or familial exposure to reinfection tuberculosis is recognized as an important procedure in case finding. As a preliminary to the discussion of the work of the clinic it is of interest to see how completely the examination of family contacts is being accomplished in Harlem. Table 1 shows the proportion of family contacts examined in 227 families in Area 8. These are families in which the index case had active

Table 1. Number of persons in 227 tuberculous families who had a clinic examination for tuberculosis—Area 8 Upper Harlem.²

AGE GROUPS	PER CENT EXAMINED	TOTAL POPULATION ³	NUMBER EXAMINED
ALL AGES	80.7	696	562
0-4	84.1	44	37
5-14	88.5	174	154
15-24	82.2	146	120
25+	78.9	313	247
Unknown		19	4

¹ The 227 families are those in which the index case (active reinfection tuberculosis) was a member of the family.

² Index cases are excluded.

³ The nursing and clerical staffs of the tuberculosis clinic were under the supervision of Miss Clara R. Price, R.N., until her retirement in September, 1941. Miss Jean South, R.N., succeeded Miss Price as supervisor of the nursing and clerical staffs. Miss Beatrice Benson, R.N., of the Community Service Society, was the supervising nurse at the clinic.

reinfection tuberculosis and was a member of the family. Eighty per cent of the exposed population had an examination for tuberculosis. Table 2 shows the same sort of data for a similar group of 115 families selected from other areas of Harlem. In this group of families, 77 per cent of the contacts had a clinic examination. Examinations by age show that in both groups attention is being given to the importance of the young adult for case finding. These samples are believed to be representative of the total tuberculous families in the areas from which they were drawn, and it may be concluded that the accomplishment indicates satisfactory work on the part of the nursing service and the clinics in obtaining examination of family contacts.

During the three-year period studied, 3,465 persons had one or more examinations at the Upper Harlem Chest Clinic; 396, or 11 per cent of the total, were persons referred by private practitioners to the Consultation Service. Eighty-five per cent of the persons examined in the diagnostic clinic were negative for tuberculosis; the remainder had a diagnosis of tuberculosis, either primary infection or the reinfection type of disease. Unnecessary visits to the clinic were at a minimum level; there were 1.5 visits per examination.

Table 2. Number of persons in 115 tuberculous families who had a clinic examination for tuberculosis.¹

AGE GROUPS	PER CENT EXAMINED	TOTAL POPULATION ²	NUMBER EXAMINED
ALL AGES	77.0	387	298
0-4	80.0	35	28
5-14	89.0	127	113
15-24	80.1	73	59
25+	64.6	147	95
Unknown		5	3

¹ A sample of families selected from Lower Harlem, Harlem Hospital District, and Area 7 in Upper Harlem. In each of the 115 families the index case (active reinfection tuberculosis) was a member of the family.

² Excluding index cases.

SUPERVISION OF TUBERCULOSIS CASES AND CONTACTS

Supervision of Tuberculosis Cases. The policy of the clinic with respect to intensity of supervision of the diagnosed case can be shown by the frequency of examination of patients. Table 3 shows the average number of examinations per year of observation for cases of reinfection tuberculosis, for primary infection, and for active cases of pleurisy. Active cases were examined most frequently; those of the reinfection type tuberculosis were examined on the average four times a year; primary infection cases which were active were examined on the average three times a year. Arrested cases and healed primary cases were examined less frequently, the former every six months and the latter about once a year. Active cases of pleurisy had the same frequency of examination as did cases of active reinfection tuberculosis. This seems a wise procedure in view of the difficulty in establishing whether an active pleurisy is tuberculous or non-tuberculous. The most significant point brought out by the table is the fact that greatest emphasis is being

Table 3. Average annual number of clinic examinations for cases of the reinfection type, primary infection tuberculosis, and cases of active pleurisy¹—Upper Harlem Chest Clinic.

DIAGNOSES DURING FIRST PERIOD OF SUPERVISION	TOTAL CASES	YEARS OF OBSERVATION	NUMBER OF RE-EXAMINATIONS	AVERAGE NUMBER OF EXAMINATIONS PER YEAR OF OBSERVATION
Reinfection Tuberculosis				
Active	164	144	621	4.3
Arrested	174	186	405	2.1
Primary Infection				
Active	36	29	94	3.3
Healed (0-14 Yrs. of Age)	102	82	110	1.3
Pleurisy				
Active	25	220	50	4.6

¹ Based on cases having more than one examination at Upper Harlem Chest Clinic.

placed upon the supervision of cases most in need, that is, cases with active disease.

Hospitalization of the active case is an important procedure in the supervision and control of tuberculosis. Data are available for Area 8 showing that this type of care was recommended by the clinic physician for seventy-seven active cases during the three-year period. Hospital care was obtained for 75 per cent of these cases. Most of the difficulty in hospitalizing cases arose with some of those who had had a previous admission to a hospital because of tuberculosis and did not wish to return for further treatment.

Although the lesion of primary infection does not present as great a risk of illness and death as does the reinfection type tuberculosis, the supervision of active primary infection was given careful attention in Upper Harlem because it is generally believed that primary infection tuberculosis is a less benign disease in the Negro than in the white person. Bed rest at home was recommended for all cases where there was a slight daily elevation of temperature. These cases were visited once a week by the public health nurse until the temperature was normal.⁴ The mother of the child was taught how to keep a daily chart of the temperature and was also instructed as to the type of care the child needed. Hospitalization was recommended for one case, a child with whooping cough superimposed upon active primary infection. Hospitalization was also recommended for a patient with extensive lesions of active primary infection. Hospital care was obtained for both. During the three years studied there were no cases in which subsequent development of reinfection type disease was observed, and at last observation approximately 50 per cent of the cases were classified as having healed lesions of primary infection.

Supervision of Contacts. Clinic supervision of contacts consists largely of examinations for tuberculosis. The Bureau of Tubercu-

⁴ Special nursing visits to cases of active primary infection under supervision at home were made in the Upper Harlem Area because of the special study of tuberculosis.

CLASSIFICATION OF EXAMINATION	PER CENT			NUMBER OF EXAMINATIONS		
	Total	Including X-Ray of Chest	No X-Ray	Total	Including X-Ray of Chest	No X-Ray
First Examinations	100.0	98.0	2.0	2,328	2,282	46
Re-examinations	100.0	93.2	6.8	1,165	1,086	79

Table 4. Proportion of clinic examinations including an x-ray of the chest.
(Cases negative for tuberculosis.)—Upper Harlem Chest Clinic.

losis considers the use of the x-ray as a most essential part of the examination. Its frequency of use can, therefore, be taken as one measure of the quality of the examination. Table 4 shows, for persons whose diagnosis was negative for tuberculosis, the proportion of clinic examinations which included an x-ray of the chest. The examinations are classified according to "first examination" and "reexaminations." Ninety-eight per cent of all first examinations included an x-ray of the chest. Since reexamination of persons negative on first examination is for the purpose of case finding, an x-ray is an essential part of the reexamination. It is gratifying to note that 93 per cent of the reexaminations also included an x-ray of the chest. These data reveal a high standard of clinic work.

Not all persons negative on first examination were designated by the clinic physician as needing reexamination at a later date. The general criteria for recommending reexamination for negative cases are age and unusual exposure conditions in the family.⁵ Out

⁵ The standards for supervision of contacts are as follows:

Contacts. Contacts should be divided into three major groups for the purpose of supervision: infants (0-3 years of age), children (3-12 years of age), adolescents and adults (above 12 years of age).

Infant contacts should be tuberculin tested and radiographed on admission. If negative, they should be retested every six months as long as they remain in contact with a source case. If Mantoux is positive, they should be x-rayed every six months. This program is to be followed until the infant reaches the third year of age.

After completing their initial examination, unless there is evidence of a reinfection or

(Continued on page 154)

of the total 2,328 persons, 737, or 32 per cent, were given appointments for subsequent examinations. The average period of observation for the 737 persons was eighteen months; they had an average of 1.6 examinations per person; in other words, those needing supervision for case finding were examined on the average once a year.

CASE FINDING

The discovery of new cases is an important function of the diagnostic clinic. The discussion of the results of this procedure will be limited to those achieved in the clinic population of Area 8. Because of the special study, more precise data on the source of the clinic population of that area are available, thus permitting the computation of accurate rates for the various groups served. The clinic population of Area 8 can be divided into three groups: (1) persons from families where there was or had recently been an active case of reinfection tuberculosis, the majority of whom had been known to be sputum positive at some time; (2) persons from families where there was a known case of arrested reinfection tuberculosis but no active cases, the majority of these arrested cases had no history of illness from the disease; and (3) persons who

an active primary lesion, all children three years of age or over are to be discharged from further supervision. Supervision after the age of twelve is to be resumed only on the basis of a continued exposure to a case of open pulmonary tuberculosis within a period of two years prior to the time the child has reached the age of twelve years. Supervision of children with a history of marked exposure to an open case at any time in childhood may also be resumed at the above age. The open case may reside in the home or may not be in the household but in close and intimate association with the child.

All new contacts above the age of twelve are to be followed at intervals of six months as long as they remain in contact with an open case of pulmonary tuberculosis and for a period of two years after the termination of the last known exposure if tuberculin positive.

Under certain circumstances exceptions from the generally applicable standards of supervision may have to be made. For example, unusual exposure conditions in the family, the presence of clinical tuberculosis in both parents or in several other members of the immediate family, would indicate the necessity of prolonged and careful supervision of the contacts, particularly those of adolescent and young adult age. It will be the responsibility of the physician to exercise individual discretion and proper judgment in the disposition of such exceptional cases.

From "Standards for Supervision of Contacts and Diagnosed Cases of Tuberculosis," set up by the Bureau of Tuberculosis of the New York City Department of Health.

referred themselves for a clinic examination or who were referred by various agencies. A fourth group which may be compared with those just described is composed of persons referred by private practitioners to the Consultation Service.

Table 5 shows the rate of case finding for each of the groups. In the period studied, the most productive group for discovery of undiagnosed active cases was the one composed of persons referred

Table 5. New cases of active reinfection tuberculosis discovered in four population groups¹—Upper Harlem Chest Clinic.

AGE GROUPS	CONTACTS TO ACTIVE REINFECTION TUBERCULOSIS	CONTACTS TO ARRESTED TUBERCULOSIS	PERSONS REFERRED FOR EXAMINATION FOR OTHER REASONS	PERSONS REFERRED TO THE CONSULTATION SERVICE
	RATE PER 100			
ALL AGES	3.0	0.4	2.0	5.3
0-14	0.7	0	0	0
15-39	4.7	0.9	2.7	7.3
40+	3.1	0	6.1	5.5
NUMBER OF CASES OF ACTIVE REINFECTION TUBERCULOSIS				
ALL AGES	26	1	16	21
0-14	2	0	0	0
15-39	18	1	11	16
40+	6	0	5	5
NUMBER OF PERSONS EXAMINED				
ALL AGES	855	266	782	396
0-14	274	78	292	68
15-39	385	113	408	218
40+	196	75	82	110

¹ All population groups are from Health Area 8 with the exception of persons referred to the consultation service; the latter patients came from various areas of Harlem.

for diagnosis by private practitioners; next in order were persons recently exposed to active reinfection tuberculosis; their rates, five and three per one hundred, respectively, were both considerably higher than the rate for any other group. The group least productive of new cases was that composed of persons from families where there was an arrested case of tuberculosis. It is of interest also to note that reinfection tuberculosis was rarely found at ages under 15 years. Out of a total of 712 children in all four groups, only two cases were discovered. These were in the group exposed to active reinfection tuberculosis in the family.

It is apparent from Table 5 that the age distribution of the populations in the four groups are not strictly comparable because of a relatively low proportion of children under 15 years of age in the population referred to the Consultation Service. When the data are restricted to persons over 14 years of age, however, the relationship between the rates of case finding in the various groups remains substantially the same.

The new active cases of reinfection tuberculosis discovered through clinic examination in Upper Harlem were chiefly early cases in the minimal stage of the disease. Sixty-two per cent were classed as minimal, 33 per cent as moderately advanced, and only 5 per cent were considered as in an advanced stage when the first diagnosis was made. Cases in the moderately advanced and advanced stages of the disease were found chiefly among persons who referred themselves for examination because of illness or who were referred by an agency because of symptoms suspicious of tuberculosis.

Careful supervision of the patient with active primary infection may lessen the risk of its subsequent development into reinfection type tuberculosis; therefore the discovery of such cases is important. Table 6 shows the case-finding rates for both active and healed primary infection for two groups of population under 15 years of age. Active primary infection was found much more frequently among children with recent exposure to tuberculosis in the family

CLASSIFICATION AS TO ACTIVITY OF DISEASE	RATE PER 100		NUMBER OF CASES	
	Contacts to Active Reinfection Tuberculosis	Other Groups ¹	Contacts to Active Reinfection Tuberculosis	Other Groups ¹
Primary Infection				
Active	8.4	1.1	23	4
Healed	15.7	12.4	43	46
Number Examined			274	370

¹ Contacts to arrested tuberculosis and persons referred for examination for other reasons—all persons are from Health Area 8.

The difference between the rates for active primary infection 7.3 ± 1.7 is four times its standard error.

Table 6. Cases of primary infection tuberculosis discovered in two groups of children under 15 years of age—Upper Harlem Chest Clinic.

than among children examined in clinic for other reasons. Even though the rates are based on small numbers, the difference between them is statistically significant and cannot be attributed to chance variations of sampling. On the other hand, lesions classified as healed primary infection were found with about equal frequency in both groups of children. Nine out of a total of twenty-three cases of active primary infection discovered in this group were cases which developed under clinic supervision. The nine cases were negative when first examined and lesions of primary infection were noted on a subsequent examination after an interval of from two months to a year. These results indicate clearly that as far as children under 15 are concerned, the group most in need of attention is that composed of contacts to reinfection tuberculosis.

RECURRENCE OF ILLNESS AMONG ARRESTED CASES

The reactivation of tuberculous lesions among arrested cases is a problem of considerable concern to the administrator of measures for the control of the disease. Siltzbach has shown the risk of recurrence of illness for patients at the Altro Workshops to be

related to sputum status before and after admission to Altro.⁶ At the end of five years 18 per cent of the patients with the most favorable status, minus-minus sputum, had had a recurrence of illness. With the data available from the Upper Harlem clinic it is impossible to present precise recurrence rates for arrested cases. To do so would require observation of cases from the time that arrest of active disease was first noted; for the Harlem cases observation must of necessity start with the beginning of supervision of the arrested case by the Upper Harlem Chest Clinic. Even with this limitation it is possible to present data of interest and value dealing with the recurrence of illness for arrested cases under clinic supervision in Area 8.

The patients with a diagnosis of arrested tuberculosis can be divided into two groups: (1) those having a history of illness from tuberculosis with subsequent arrest of the disease, and (2) those having no history of illness from tuberculosis. In the first group there were sixty cases and in the second there were eighty cases.⁷ All were supervised by the Upper Harlem Chest Clinic. Table 7 shows the recurrence of illness for the two groups of

Table 7. Recurrence of illness from tuberculosis among arrested cases supervised by Upper Harlem Chest Clinic.¹

CLASS	HISTORY OF ILLNESS	
	Known Illness from Tuberculosis	No Illness and No Hospitalization for Tuberculosis
Recurrence of Illness from Tuberculosis		
Rate per 100 Person-Years	17.7	2.0
Number of Cases	13	2
Number of Person-Years Under Clinic Observation	73.3	100.6

¹ Shortest period of supervision was four months, longest period of supervision was three years.

⁶ Siltzbach, Louis E.: The Sheltered Workshop in the Rehabilitation of the Tuberculous. *The Milbank Memorial Fund Quarterly*, January, 1943, xxi, No. 1, pp. 80-101.

⁷ None of the arrested cases was under twenty-two years of age.

patients. The shortest period of supervision was four months and the longest possible period of supervision was three years. The population is expressed in person-years under clinic observation. There is a marked difference in the rates of recurrence in the two groups. Those patients having a history of a known illness from tuberculosis had a risk of recurrence slightly more than eight times the risk for cases with no history of an illness from tuberculosis.

These data may have implications of importance to the physician responsible for the supervision of arrested cases. The clinic supervision of the cases in both groups was similar as to frequency of examinations. Those with no history of a recognized illness from tuberculosis probably need considerably less supervision than do cases in the other group. With greater use of x-ray surveys for case finding the problem of the kind of supervision needed by persons discovered to have old arrested tuberculous scars in their lungs will be of increasing importance. The data presented here suggest that a history of recognized illness from tuberculosis is one criterion which may be used to distinguish arrested cases needing close clinic supervision. That the Bureau of Tuberculosis of the Department of Health is aware of the problem is seen by the recently revised standards for the supervision of cases of arrested tuberculosis. They are as follows:⁸

Chronic Pulmonary Tuberculosis—Arrested. Cases of arrested pulmonary tuberculosis should be observed at intervals of *six months* or less, if indicated. If their condition remains stationary for a period of not less than eighteen months after the diagnosis of arrest has been made, they may be classified as "apparently cured."

Chronic Pulmonary Tuberculosis—Apparently Cured. For practical purposes cases of apparently cured pulmonary tuberculosis may be divided roughly into the following two categories:

- A. Patients with a relatively recent record of an active lesion subsequently becoming stable, who have been under observa-

⁸ "Standards for Supervision of Contacts and Diagnosed Cases of Tuberculosis," set up by the Bureau of Tuberculosis of the New York City Department of Health.

tion for the required period of time to be classified as "appar-
ently cured."

B. Patients presenting apparently well-healed lesions at the time of their initial examination, with no known history or record of active disease in the past. These are generally cases discovered on the basis of a routine chest x-ray.

Patients falling into the *first* group (A) should be observed at intervals of *six months* for a minimum period of three years after the case has been classified as apparently cured. In many cases longer periods of supervision may be indicated. The decision will depend on the character of the lesion, its extent, and the age of the patient, with the emphasis on the adolescent and young adult persons.

Cases falling to the *second* group (B) may often be classified as apparently cured on the basis of the initial examination or after a brief follow-up observation in the clinic to determine the stability of the lesion. The decision as to the necessity of further supervision of cases of this type should be made after consideration of the following factors: age, race, character and extent of the lesion.

In general, persons over the age of 35 years presenting apparently well-healed lesions of a purely fibrotic or fibro-calcific type and of *minimal extent*, in the absence of a significant history or symptoms, are not in need of long-term routine clinic supervision and may be discharged. *All others* should be observed at intervals of six months in accordance with the principles outlined for those included in group (A).

In discontinuing routine clinic supervision of any diagnosed case of pulmonary tuberculosis, it is essential to instruct the patient as to the necessity of prompt examination should he develop significant symptoms suggestive of reactivation of the disease.

On the whole, the data presented in this report indicate that a high standard has been set up by the Bureau of Tuberculosis for the work of its clinics and that the standard is being well maintained in the Upper Harlem Chest Clinic. Careful supervision is being given to diagnosed cases; hospitalization for cases needing such care has been obtained to a considerable extent; and case-finding procedures which have been tested by experience are being successfully put into effect.

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FOOD HABITS OF FAMILIES IN THE EASTERN HEALTH DISTRICT OF BALTIMORE IN THE WINTER AND SPRING OF 1943¹

JEAN DOWNES AND ANNE BARANOFSKY

THE quality of diets is a matter of interest at this time because of the importance of proper food in maintaining health during the emergency. According to a recent report from the National Research Council's Food and Nutrition Board, every nutritional survey in the past decade has indicated that a large proportion of families have diets below the recommended standard (1). During the period 1940-1943 there has been a great increase in the purchasing power of many people. The increased market demand is evidence that a considerable share of this increased purchasing power has gone into food. A survey of food habits in a population group in a war industry center, which has provided information describing the quality of diets obtained during the period of increased purchasing power and since food rationing has been in effect, is certainly of current interest.

This report presents data from two records of food used during one week for a sample of 943 white families living in the Eastern Health District of Baltimore. The data were obtained at two different periods in 1943, January and February, and again in April and May; that is, before and after the beginning of rationing of processed foods, meats, and fats.²

THE SAMPLE

The families surveyed were from a population which was being visited for the purpose of collection of data on illness. When the special study of illness was initiated in May, 1938, the Eastern

¹ From the Milbank Memorial Fund and the United States Public Health Service.

² Rationing of canned vegetables, canned fruits, and fruit juices, dried beans, and certain frozen foods was started March 1, 1943. Rationing of meats, cheese, canned fish, canned milk, butter, and other fats started March 29, 1943.

Health District of Baltimore consisted of two city wards containing 10,979 white families or households, including approximately 43,000 persons, and 2,800 colored households, including 12,363 persons.⁸ As far as the white population is concerned, the district is considered as fairly representative of the localities in the city in which the wage-earning population live; that is, it contains some families in relatively poor economic circumstances, wage-earning families in moderate circumstances, relatively few families in the professional class, and no families that can be classed as wealthy. Consequently, the district cannot be considered as strictly representative of Baltimore as a whole, but is probably representative of the population which forms the greatest majority in the City.

The method of sampling for the initial population in the illness study has been described in detail in a previous report (2). It is sufficient here to say that the white families living in thirty-five city blocks scattered throughout the two wards formed the sample population. The sample was found to be representative of the population of the district from which it was drawn with respect to age constitution, size of household, and home ownership.

The study of illness extended over a period of five years. At the end of three years it was decided to change the sample being studied by increasing the number of families in which there was a case of chronic illness. Accordingly one-half of the total families with no chronic disease in them were dropped from observation and another thirty-five blocks in the district were surveyed in order to discover additional families with chronic illness. This meant that at the beginning of the fourth year of study the number of families with chronic illness was doubled with the result that the sample was then about evenly divided between families with no case of chronic illness and those having one or more cases of chronic disease.

⁸ A few months after the special study of illness was started, the Eastern Health District was enlarged so that it now includes a population of approximately 100,000. Any reference to the Eastern Health District in this paper, however, is to the former district composed of Wards 6 and 7.

The records of food habits were obtained in 1943, near the end of the fifth year of the sickness study. The 943 families constitute about 80 per cent of the total families being visited at that time. It is recognized that chronic diseases, with a few exceptions, tend to occur most frequently among persons in the middle and old-age periods. Therefore, the families studied for food habits are weighted with more of the older families than would be the case if the sample consisted of a cross-section or entirely random selection of families in the district from which they were drawn. However, the data on food habits of the family are shown according to the age of the housewife. In this way it is possible to bring out clearly the influence of older families upon the presentation of data on food habits for the community.

DESCRIPTION OF THE FAMILIES

Certain characteristics of the families surveyed for food habits are presented which are of interest in relation to the family dietary pattern. The distribution of the families according to age of housewife is shown in Table 1. In 23 per cent of the families the housewife was under 35 years of age; in 33 per cent she was from 35 to 49 years of age; and 43 per cent of the housewives were 50 years of age or older.

Age of housewife was found to be a factor related to the dietary pattern of the family; consequently, the data on food habits are presented according to three age groups: (1) for families where the housewife was under 40 years of age; (2) families where the

Table 1. Distribution of families according to age of housewife.

Age of Housewife	Per Cent	Number of Families
TOTAL	100.0	943
Under 20 Years	0.4	4
20-24 Years	4.8	45
25-29 "	8.0	76
30-34 "	10.1	95
35-39 "	10.4	98
40-44 "	11.3	107
45-49 "	11.6	109
50-59 "	22.9	216
60 Years and Over	20.5	193

housewife was 40-59 years of age; and (3) those where the housewife was 60 years of age or over.

Table 2 shows the families classified according to whether there were one or more members of the family employed and indicates also whether some members were employed in industries engaged in defense work. Eighteen per cent of the families where the housewife was 60 years of age or over had no employed person in them. It is to be expected that in this group there would be a relatively high proportion of families living on savings or other income but with no income from employment. It is apparent that in the majority of the families in two of the groups there was one or more members of the family employed in defense work; the proportions were

Table 2. Distribution of families according to employment of members.

TYPE OF EMPLOYMENT	TOTAL FAMILIES	AGE OF HOUSEWIFE		
		Under 40	40-59	60 and Over
PER CENT				
TOTAL	100.0	100.0	100.0	100.0
No Employed Persons in Family	6.3	1.6	4.6	17.6
Some Persons Employed, None in Defense Work	34.8	31.2	35.6	38.8
Some Persons Employed, Some in Defense Work	57.6	65.2	58.6	41.5
Some Persons Employed, Unknown as to Defense Work	1.3	1.0	1.2	2.1
NUMBER OF FAMILIES				
TOTAL	943	318	432	193
No Employed Persons in Family	59	5	20	34
Some Persons Employed, None in Defense Work	328	99	154	75
Some Persons Employed, Some in Defense Work	543	210	253	80
Some Persons Employed, Unknown as to Defense Work	12	3	5	4
Unknown	1	1	—	—

NUMBER OF PERSONS	PER CENT				NUMBER OF FAMILIES			
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	884	313	412	159
None	30.3	31.6	24.3	43.4	268	99	100	69
1 Person	42.7	46.3	41.7	37.7	377	145	172	60
2 Persons	17.8	16.6	20.4	13.2	157	52	84	21
3 "	6.4	2.9	10.2	3.8	57	9	42	6
4 "	1.5	1.0	1.9	1.3	13	3	8	2
5 "	1.1	1.3	1.5	0	10	4	6	—
6 "	0.1	0.3	—	0	1	1	—	—
7 "	0.1	—	—	0.6	1	—	—	1

Table 3. Distribution of families according to number of workers taking lunch from home.

42 per cent in the oldest families, 59 per cent in the age group 40-59, and 65 per cent in the youngest age group.

Table 3 shows that in a considerable number of the families with employed members, lunch was being taken from home by the workers. The proportion of families with workers taking lunch from home was least in the oldest families (57 per cent) and greatest

Table 4. Number of persons in family.

NUMBER OF PERSONS	PER CENT				NUMBER OF FAMILIES			
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
1 Person	4.3	0.3	3.5	13.0	41	1	15	25
2 Persons	23.9	16.1	22.7	39.4	225	51	98	76
3 "	25.1	25.2	26.1	22.8	237	80	113	44
4 "	18.7	25.5	16.9	11.4	176	81	73	22
5 "	12.9	15.4	12.7	9.3	121	49	55	18
6 "	8.1	10.1	9.3	2.6	77	32	40	5
7 "	3.8	5.0	4.4	0.5	36	16	19	1
8 or More	3.1	2.4	4.4	1.0	29	8	19	2

est (76 per cent) for families where the housewife was 40-59 years of age.

It may be concluded that the families surveyed represent chiefly those with workers in them, many of whom were engaged in defense work. This fact adds special interest to a study of the food habits of the families from which they come.

In Table 4 the families are classified according to the number of persons present when visited in 1943. The families where the housewife was under 40 had the highest proportion with four or more persons in them. The majority of the families where the housewife was 60 years of age or older were one or two-person households; 52 per cent were in this class.

Table 5. Distribution of families according to weekly food expenditure.

WEEKLY FOOD EXPENDITURE PER ADULT COST UNIT	TOTAL FAMILIES	AGE OF HOUSEWIFE		
		Under 40	40-59	60 and Over
PER CENT				
TOTAL	100.0	100.0	100.0	100.0
Under \$2.50	2.5	1.1	2.2	5.5
\$2.50-\$3.49	9.4	8.0	9.0	12.7
3.50-4.49	20.6	18.5	18.5	29.1
4.50-5.49	25.6	26.1	25.9	24.2
5.50-6.49	20.6	18.8	24.8	14.5
6.50-7.49	10.5	13.9	10.1	5.5
7.50 and Over	10.8	13.6	9.5	8.5
NUMBER OF FAMILIES				
TOTAL	943	318	432	193
Under \$2.50	20	3	8	9
\$2.50-\$3.49	77	23	33	21
3.50-4.49	169	53	68	48
4.50-5.49	210	75	95	40
5.50-6.49	169	54	91	24
6.50-7.49	86	40	37	9
7.50 and Over	88	39	35	14
Unknown	124	31	65	28

The housewife was asked to give information as to the amount of money spent for food during the seven-day period preceding the visit. Table 5 shows the weekly food expenditure per adult cost unit for the 943 families classified by age of the housewife.⁴ In 1943 a weekly food expenditure of less than \$3.60 per adult cost unit may be considered as an inadequate amount for obtaining a proper diet.⁵ It is apparent that relatively few families in any age group spent less than an adequate amount of money per week. The highest proportion in this class, 18 per cent, was noted in the families where the housewife was 60 years of age or over. On the whole, families in this age group tended to fall into lower weekly food-expenditure classes than did the younger families.

DESCRIPTION OF DATA OF FOOD HABITS

Information concerning the use of different foods for a seven-day period before and after rationing of processed foods, meats, and fats was obtained for each of the 943 families. The first record for these families was obtained during January and February, 1943; the second was obtained during April and May of the same year.

The seven-day report was designed to describe qualitative food habits of the family. The housewife was asked to give information as to the amount or frequency of use of specific foods during the seven-day period preceding the visit. The information for each type of food was as follows:

1. The amount of milk
2. The amount and kind of cheese
3. Number of eggs
4. The amount of butter or enriched oleomargarine

⁴ Weekly food expenditure is expressed per adult cost unit because this method allows for the relative cost of maintenance of children and adults.

⁵ According to the U. S. Bureau of Labor Statistics the average cost of food in Baltimore during the period January to May, 1943 was about 43 per cent above the average for the years 1935-1939 (3). In March, 1935 the minimum weekly amount of money necessary for a good diet was \$2.52 per adult cost unit (4). Increasing this amount by 43 per cent, the minimum weekly expenditure necessary for a good diet in 1943 was \$3.60 per adult cost unit.

5. Citrus fruits, times used
6. Tomatoes, times used
7. Other fruits, times used
8. Potatoes (white), times used
9. Vegetables, times used for each kind
10. Kinds and times meat used
11. Dried beans or peas, times used
12. Bread and cereals, times used for each kind

Before the data on use of different foods are discussed, it will be helpful to consider the significance of the recommended foods with reference to their contribution to a balanced diet with adequate amounts of various essential nutrients. Although some of the essential nutrients are distributed in nature in many different foods, several are present in appreciable amounts in only a few foods. An important example of the latter is ascorbic acid. Citrus fruits and tomatoes are very good sources of this vitamin, and although a few other foods also are moderately good sources, most diets will contain insufficient amounts of ascorbic acid unless a citrus fruit or tomato is included regularly in the diet. The vitamin A allowance can be obtained from various combinations of foods; nevertheless, a green or yellow vegetable of high vitamin A content usually is essential because it can be replaced satisfactorily only by an exceptionally large consumption of dairy products. The amount of milk daily which is recommended not only is needed to assure a good source of calcium and to supplement the vitamin A from vegetables, but also is almost indispensable for obtaining the amount of riboflavin which is considered necessary. Meat is the next best source of riboflavin, but some methods of cooking destroy a large percentage of the riboflavin, and only those who eat exceptionally large quantities of lean meat daily are likely to have an adequate amount of riboflavin unless milk is included in the diet. Meat is the best source of niacin (nicotinic acid). Thiamin is rather widely distributed in foods, but not in concentrated amounts. Milk, meat, and

some vegetables are fairly good sources of thiamin, but there may be considerable loss from cooking. Eggs are not the most important source of any of the nutrients, but they are a good source of several vitamins as well as of iron and protein. The regular consumption of eggs, therefore, is desirable as a supplement to other foods. Thus, it is apparent that a regular and adequate supply of the principal vitamins and minerals under most circumstances can be obtained best by the consumption each day of a green or yellow vegetable, a citrus fruit or tomato, two glasses of milk or equivalent, an egg, and a serving of lean meat. Whole grain cereal food or bread is also important in the diet, but the enrichment of cereal products has somewhat modified the need for whole grain products. Other food combinations can be used to obtain complete nutritional protection, but as a rule only very specially planned diets furnish all the necessary nutrients when these varieties of foods are not included. The total diet should include other foods, especially butter or fortified oleomargarine, and potatoes, and an amount of food sufficient to furnish the required energy value.

The records of foods used by the families studied contain both quantitative and nonquantitative data. They show food choice of the family as a whole and indicate fairly well the possibility of certain dietary deficiencies. Distribution of the foods among different family members is not necessarily equal and that fact must be kept in mind in the interpretation of the data presented in this study.

FREQUENCY IN USE OF SPECIFIC FOODS

The reported frequency in the use of specific foods is shown in Figures 1 and 2 and in Appendix Tables 1 to 9.

Fruits. From 36 to 52 per cent of the families reported that fruit was used two or more times a day. The youngest families (housewife under 40 years of age) used fruit most frequently and the oldest families least frequently.

A higher proportion of the families reported a satisfactory use

of citrus fruits and tomatoes than was true for all fruits. From 58 to 78 per cent used these fruits six or more times a week.

Milk. Most of the families used less milk than the recommended amount. Only 30 to 42 per cent of the families used 3.5 quarts or more per person per week.

Vegetables. Few families reported using an average of two vegetables a day in addition to using potatoes as recommended.* From 18 to 21 per cent of the families reported that vegetables of any type, including white potatoes, were eaten as many as nineteen or more times in a week; from 1 to 9 per cent had eaten vegetables less than six times a week.

The use of green or yellow vegetables was relatively infrequent; from 70 to 74 per cent of the families reported eating vegetables in this class less than seven times a week, from 13 to 33 per cent had green or yellow vegetables less than three times a week. The lack of green or yellow vegetables in the diet was specially noted in the families where the housewife was 60 years of age or older.

Meat. Lean meat, fish, or poultry was eaten at least once a day by most of the families; from 15 to 25 per cent had meat less than six times a week. The families in all three age groups had fairly similar habits with regard to the frequency of use of meat.

Eggs. From 8 to 20 per cent of the families used less than 2.5 eggs per person per week; from 23 to 31 per cent averaged one a day per person per week.

Butter. From 28 to 41 per cent of the families used less than one-quarter of a pound of butter or enriched oleomargarine per person per week. Although the older families used somewhat more butter per person than did the other two groups of families, on the whole the three groups of families were fairly similar as to the amounts used in a week.

* On counting the number of times all vegetables were used during a week, white potatoes were included a maximum of seven times. Although many families used potatoes more than seven times a week, it was felt that this should not substitute for the use of other vegetables.

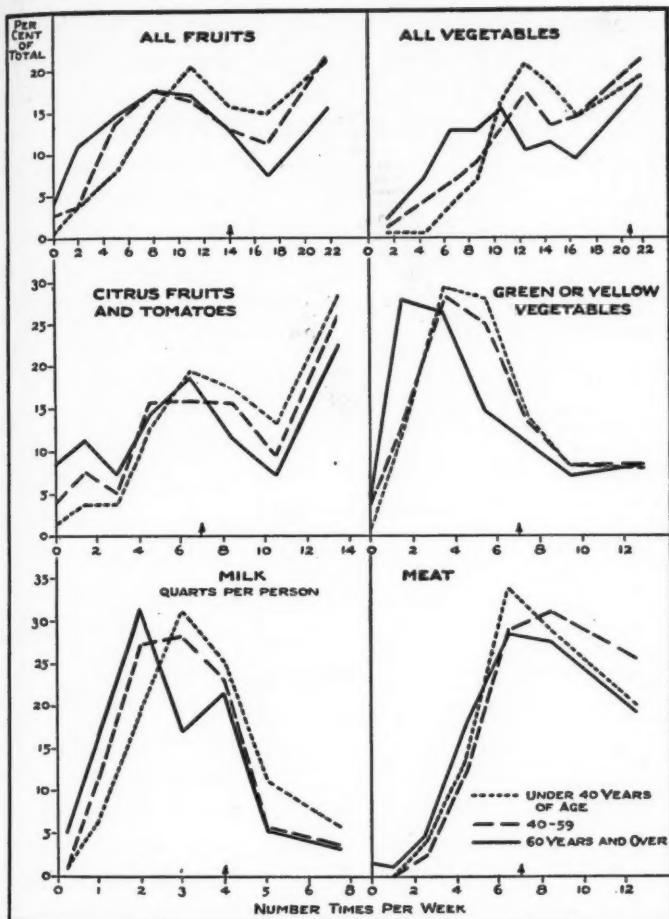


Fig. 1. Percentage distribution of diet records for 943 families in the Eastern Health District of Baltimore according to the reported use of specific foods or food groups during one week, January and February, 1943. (The arrow indicates the frequency of use which approximately corresponds to that in the recommended dietary pattern.)

Whole Grain Cereal Foods (Appendix Table 9). Use of dark bread and whole grain cereals has been generally advocated and the

consumption of these foods, therefore, is of interest. The younger families used dark bread only slightly more frequently than did the older families; from 41 to 49 per cent reported eating dark bread at least once a day.⁷

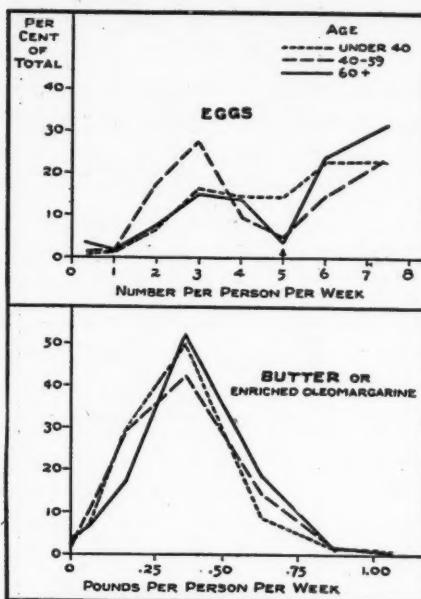


Fig. 2. Percentage distribution of diet records for 943 families in the Eastern Health District of Baltimore according to the reported use of eggs and butter during one week, January and February, 1943. (The arrow indicates the frequency of use which approximately corresponds to that in the recommended dietary pattern.)

consumption and for citrus fruits and tomatoes are of this type; for other foods, the areas under the curves and to the left of the arrow show that large percentages of the diets were low in their content of yellow or green vegetables, of all fruits, milk, and eggs. Also, the charts bring out clearly the relationship of age of the housewife and

⁷In connection with the use of dark bread it should be pointed out that 12 per cent of the families studied were Jewish.

From 50 to 67 per cent of the families used no whole grain breakfast cereal, either prepared or cooked, in a week, and only 5 to 10 per cent ate it every day.

On the charts in Figures 1 and 2 an arrow indicates the frequency of use of each food or food group which approximately corresponds to that in the recommended dietary pattern. If the diets had conformed fairly well with this pattern, each curve would reach a peak at a point above the arrow. Only the curves for meat

the quality of the dietary pattern; the best diets were recorded for the youngest families and the poorest for the oldest families.

COMPARISON OF FOOD HABITS IN WINTER AND EARLY SPRING

A comparison of the use of various types of foods by the same families at two different periods of time affords important evidence on the extent to which food habits of a family tend to be fixed. Or, in other words, does a family vary its food choices from week to week with the result that the dietary pattern for one week is not typical of a family's eating habits? In a recent study of the amounts of specific nutrients in the diets of twenty-five children at three different periods of 10-14 days, Huenemann and Turner (5) concluded that "no single diet record could be considered 'typical' of a subject's food intake over a period of time, in the majority of the cases studied."

For these families, the degree of association in the frequency of use of specific foods in April and May with the use of the same foods in January and February has been measured by the coeffi-

Table 6. Correlation of amount or frequency of use of different foods in one week in January or February with use in one week in April or May, 1943, for families in the Eastern Health District of Baltimore.

SPECIFIC FOODS AND MEASURE OF USE	COEFFICIENTS OF CORRELATION ¹ FOR FAMILIES GROUPED BY AGE OF HOUSEWIFE		
	Under 40 Years	40-59 Years	60 Years and Over
Milk, Quarts Per Person	+.53	+.54	+.72
Butter, Pounds Per Person	+.37	+.28	+.49
Eggs, Number Per Person	+.40	+.43	+.53
Citrus Fruits and Tomatoes, Times Per Week	+.40	+.50	+.53
All Fruits, Times Per Week	+.40	+.48	+.50
Green and Yellow Vegetables, Times Per Week	+.34	+.37	+.40
All Vegetables, Times Per Week	+.25	+.48	+.44
Meat, Times Per Week	+.34	+.23	+.47

¹ For age group under 40, N = 318, $\sigma_x = .056$; age group 40-59, N = 432, $\sigma_x = .048$; age group 60+, N = 193, $\sigma_x = .072$.

ients of correlation. These coefficients are shown in Table 6 for families in the three age groups. For every food group in each age class, the coefficient of correlation is statistically very significant. There was, therefore, a definite tendency for families to be high, or low, in the use of specific foods at both periods. On the other hand, most of the coefficients are of a relatively low order, and the majority are between +.23 and +.50. In other words, there was considerable variation in the families' use of certain foods or food groups in one period of time as compared with the other period. Milk is the only food for which there was a relatively high association in the amount used in each of the two periods for the families in each age group.

Table 6 shows also that there was a higher degree of association in the two periods in the use of practically all of the different food groups for families where the housewife was 60 years and over, compared with the younger families; that is, the food habits of the older families were less variable and tended to be more fixed.

One purpose of this particular study is to describe the change in the use of the specific food groups after rationing of some foods was started. Table 7 shows the mean frequency of use or consumption of the specific foods in the two periods and the mean differences in consumption. For each comparison, a distribution of "paired differences" (6) was obtained by taking the difference between the values for use of a specific food in the two periods for each family. The standard deviations of the distributions of these differences are shown in Table 7 and indicate the extent of the variation in frequency of use of the various foods by individual families. The significance of the differences between average values for the two periods is indicated by the standard errors of the means for the distributions of paired differences.

For families in the three age groups there were increases in the mean use of practically all of the foods or food groups in April and May compared with the earlier period. Some of the increases were

Table 7. Mean values for use of different groups of food in one week in the winter and in the spring of 1943, difference between means for the two periods and standard deviations for distributions of difference in use in the two periods by specific families.

SPECIFIC FOODS AND MEASURE OF USE	MEAN FOR ONE WEEK		MEAN DIFFERENCE II-I	FOR PAIRED DIFFERENCES	
	January- February I	April- May II		Standard Error of Mean Difference	Standard Deviation
HOUSEWIFE UNDER 40 YEARS OF AGE—318 FAMILIES					
Milk, Quarts Per Person	3.35	3.41	.060	±.078	1.392
Butter, or Enriched Oleo, Pounds Per Person	.37	0.39	.016	±.011	0.194
Eggs, ¹ Number Per Person	5.67	6.72	1.055	±.200	2.963
Citrus Fruits and Tomatoes, Times Per Week	9.14	9.27	.132	±.276	4.919
All Fruits, Times Per Week	13.22	13.80	.579	±.363	6.479
Green or Yellow Vegetables, Times Per Week	5.54	6.10	.560	±.199	3.542
All Vegetables, Times Per Week	14.49	12.35	-2.146	±.354	6.313
Meat, Times Per Week	7.72	8.06	.338	±.180	3.204
HOUSEWIFE 40-59 YEARS OF AGE—432 FAMILIES					
Milks, Quarts Per Person	2.98	3.06	.083	±.065	1.358
Butter, or Enriched Oleo, Pounds Per Person	.37	.39	.020	±.011	0.233
Eggs, ¹ Number Per Person	5.76	7.27	1.507	±.176	2.940
Citrus Fruits and Tomatoes, Times Per Week	8.50	9.23	.732	±.246	5.114
All Fruits, Times Per Week	11.37	13.22	.850	±.316	6.575
Green or Yellow Vegetables, Times Per Week	5.48	5.77	.291	±.193	4.006
All Vegetables, Times Per Week	14.16	12.27	-1.873	±.293	6.086
Meat, Times Per Week	8.17	8.11	-.065	±.172	3.569
HOUSEWIFE 60+ YEARS OF AGE—193 FAMILIES					
Milk, Quarts Per Person	2.65	2.92	.269	±.080	1.106
Butter, or Enriched Oleo, Pounds Per Person	.41	.43	.028	±.012	0.169
Eggs, ¹ Number Per Person	6.00	6.98	.976	±.260	2.895
Citrus Fruits and Tomatoes, Times Per Week	7.15	7.85	.710	±.366	5.083
All Fruits, Times Per Week	10.68	11.36	.679	±.498	6.913
Green or Yellow Vegetables, Times Per Week	4.82	5.17	.345	±.295	4.096
All Vegetables, Times Per Week	12.56	11.03	-1.529	±.460	6.384
Meat, Times Per Week	7.38	7.63	.257	±.223	3.102

¹Due to the increased use of eggs at Easter time, all records obtained within one week before and one week after Easter were excluded in considering the use of eggs in the period April and May.

very slight and not significant. For example, the mean increase in the use of green and yellow vegetables was significant only for families where the housewife was under 40 years of age. These families, on the other hand, had little change in the average use of citrus fruits and tomatoes, and families in which the housewife was 40 years or older increased their use of citrus fruits and tomatoes. There was a significant increase in the use of eggs in all of the three groups of families.

The mean differences in the use of all vegetables indicate that there was a definite decrease for all of the families with respect to consumption in April and May as compared with January and February. The mean times per week for the use of all vegetables was about two times per week less in the spring than in January and February. April and May were months when white potatoes were scarce in Baltimore food markets. A comparison of the food records of the families indicated that the frequency in use of white potatoes declined 50 to 60 per cent in April and May as compared with their use in January and February. This, it is believed, accounts for most of the decrease in the use of all vegetables.

There was no significant change in the frequency with which meat and dried beans were served, the mean times per week being seven or eight for all groups of families in both periods. The average use of butter or enriched oleo was close to 0.4 pound per person per week in both periods.

Apparently, food rationing did not materially alter the food habits.

The variation in the use of many of the foods and food groups was great enough to warrant the conclusion that a food record of the family for any particular period cannot be considered as typical of the food habits of the family. The standard deviations for differences in use by the same family in the two weeks show clearly that use of specific foods varied greatly. For example, the standard deviations for citrus fruits and tomatoes are about 5, and for approxi-

mately one-third of the families the difference in times used per week for the two periods was more than 5. For green and yellow vegetables, the standard deviations are from 3.5 to 4.1 times per week. Thus, although the coefficients of correlation indicate that there is some relationship between the levels of use in the two periods, for some families the frequency of use of a particular group of foods was very different in the two periods. These food records, therefore, describe general tendencies in the dietary pattern of these groups of families.

QUALITATIVE CLASSIFICATION OF FOOD HABITS

To summarize the food choices of the families, it is convenient to classify the use of selected foods in a few categories based on the amount of deviation from a dietary pattern prepared by the Committee on Food and Nutrition. For five food groups, namely, citrus fruits or tomatoes, green or yellow vegetables, eggs, milk, and meat, the habits of use were classified in one of three categories. The categories and the dietary pattern recommended are given in detail in Appendix 2. The category "satisfactory" indicates a use equal to or only slightly below the recommended standard. "Marginal" describes a use moderately below standard, and "unsatisfactory" a use considerably below standard.

By combining the ratings for each of the five types of foods, it is possible to get a composite rating which indicates the quality of the dietary pattern of each family. A composite rating of "satisfactory" was given if all food groups were rated as "satisfactory." A diet was classified as "marginal" if any food group was rated "marginal," but all other food groups were "marginal" or "satisfactory." A diet was considered as "unsatisfactory" if any of the five food groups was given an "unsatisfactory" rating.

Figure 3 and Appendix Table 10 show the composite ratings on food habits in families by age of housewife for each of the two periods studied. In the first period, January and February, food

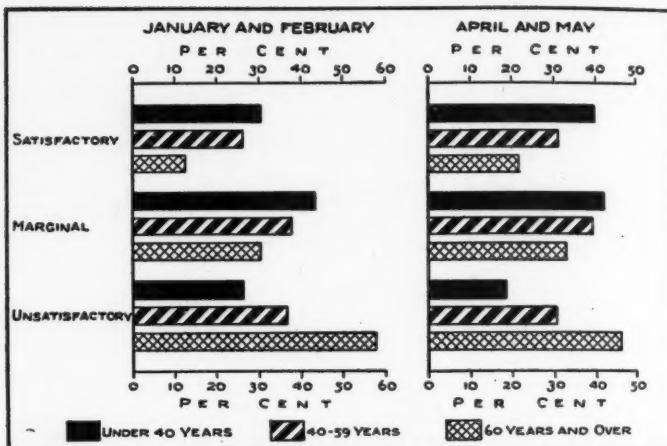


Fig. 3. Percentage distribution of composite ratings for food habits in relation to age of housewife, at two periods in 1943.

habits were rated as "satisfactory" for 30 per cent of the young families, 26 per cent of the middle-age families, and 13 per cent of the old-age families. For families with diets rated as "marginal" the same relationship of rating with age of housewife was noted but the differences between the groups were not so great. Forty-three per cent of the youngest families and 30 per cent of the oldest families had food habits classed as "marginal." In families with food habits considered as "unsatisfactory" the age relationship of the three groups was reversed. Only 26 per cent of the young families were in this class compared with 36 per cent of the middle-age families and 57 per cent of those where the housewife was 60 years of age or older. Since a "marginal" or "unsatisfactory" rating indicates an inadequate family dietary pattern, it is evident that the majority of the families were below standard in their consumption in one or more of the important food groups.

In the second period studied, April and May, the same relationship between age of family and rating of food habits was noted as has been pointed out for the earlier period. Some improvement in

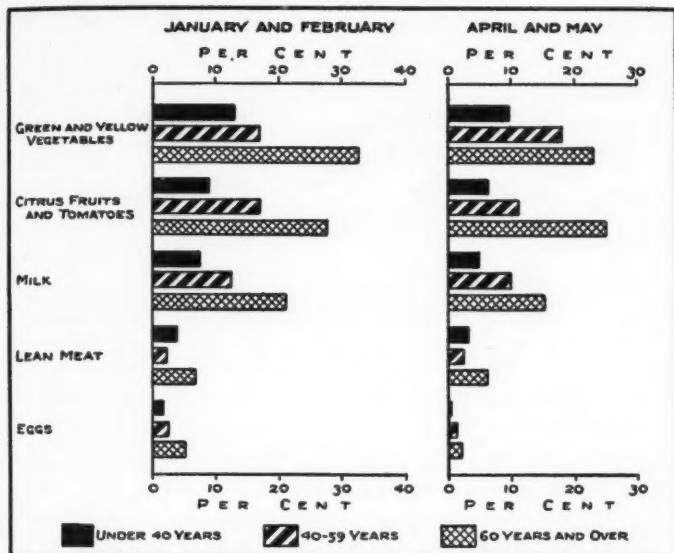


Fig. 4. Percentage distribution of food habits classified as unsatisfactory for amounts of specific food groups, according to age of housewife, at two periods in 1943.

food habits was evident. This is shown by increases in the proportions of families with food habits rated as "satisfactory" and decreases in the proportions rated as "unsatisfactory." These changes were noted for the families in each age group. For example, 19 per cent of the youngest families and 46 per cent of the old-age families in April and May reported diets rated as "unsatisfactory" compared with 26 and 57 per cent, respectively, in January and February. Very little difference in the two periods was noted for the proportions in each age group with food habits rated as "marginal." Certainly it cannot be said that rationing had an adverse effect upon the food habits of these families.

It is of interest to indicate the extent to which the use of specific foods was rated as "unsatisfactory" in the two periods (Figure 4 and Appendix Table 10). For both periods, marked deficiencies in the

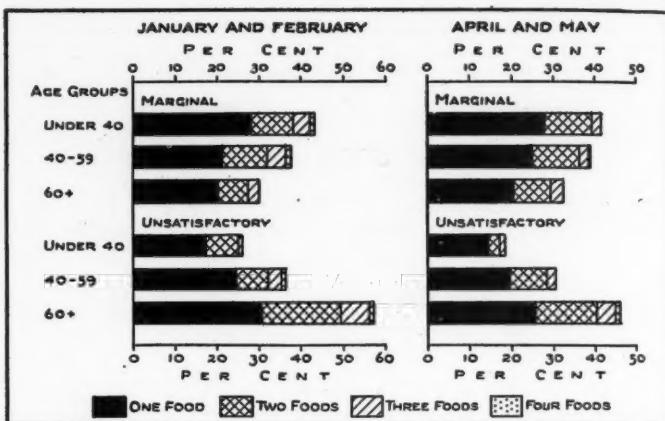


Fig. 5. Percentage distribution of composite ratings for food habits and of the number of food groups with the specified lowest rating, according to age of housewife, January and February, 1943.

quality of the diet were noted most frequently in the use of green and yellow vegetables, citrus fruits and tomatoes, and milk. These deficiencies were greatest in families in the old-age group. For example, 33 per cent and 23 per cent of these families in the first and second periods, respectively, used green and yellow vegetables less than three times a week. In the same age group, at both periods, about one-fourth of the families had citrus fruits and tomatoes less than four times a week. On the other hand, a very small proportion of the families in the three age groups used an "unsatisfactory" number of eggs. The proportion which had a rating of "unsatisfactory" in the use of lean meat was relatively small and did not change in the two periods studied. For all foods except meat, the proportion of families with "unsatisfactory" ratings was less in April and May than in January and February. This was true for families at each age period.

The distribution of the "marginal" and "unsatisfactory" ratings according to the number of food groups with these particular ratings are shown in Figure 5, and Appendix Tables 11 and 12. When

the diets rated as "marginal" are considered, in both periods from 20 to 28 per cent of the total families in each age group had this rating because of one food group only. In families where the housewife was under 60 years of age, fewer had three or more food groups rated "marginal" in April and May than in January and February. On the other hand, there was an increase in April and May in the proportion of old-age families rated marginal in two or more food groups.

The distribution of the "unsatisfactory" ratings showed a striking difference in families by age of housewife in both periods. A much higher proportion of the old-age families (housewife 60+) had an "unsatisfactory" rating in the use of two or more food groups than did families where the housewife was under 40 and 40-59 years of age. In January and February, the percentages were 27 compared with 9 and 11, respectively. This difference with age in the rating of two or more food groups was true of both periods studied.

The findings in this study in the Eastern Health District of Baltimore are in general agreement with a recent study of diets of a group of aircraft workers in southern California when consideration is given to the fact that the California study was based upon diets of individuals and in Baltimore the data on food habits represent an average for the family group (7). Both studies reveal that relatively few individuals or families had a dietary pattern which could be considered entirely adequate with respect to all food groups considered. Young men in the California study and, in Baltimore, young families had somewhat better diets than did older men and older families.

SUMMARY

Records on the amount and frequency of use of selected foods during one week were collected for 943 families at two different periods in 1943, January and February and April and May. The reported use of each of five foods or food groups was compared

with amounts recommended in the dietary pattern prepared by the National Research Council, Committee on Food and Nutrition. The data are presented for the two periods according to age of the housewife.

1. Percentages of food records which included specific foods with the frequency in amounts per week equal to or slightly below that recommended were:

	January-February		
	Age of Housewife		
	Under 40	40-59	60+
	Per Cent of Group		
Green or yellow vegetables, 7 x or more	30	30	26
Citrus fruits or tomatoes, 6 x or more	78	67	58
Milk, 4 quarts per person	17	9	8
Eggs, 4 or more per person	60	43	59
Lean meat, fish, etc., 6 x or more	82	85	75

2. Percentages of food records where use of specific foods was definitely below that recommended were:

	January-February		
	Age of Housewife		
	Under 40	40-59	60+
	Per Cent of Group		
Green or yellow vegetables, 4 x or less	42	46	59
Citrus fruits or tomatoes, 3 x or less	9	17	28
Milk, 2 quarts or less per person	58	68	70
Eggs, 1 or less per person	8	20	13
Lean meat, etc., 3 x or less	4	2	7

Though some improvement was noted in the second period studied, it was found that a majority of the families in both periods had used one or more of the five foods with a frequency moderately or considerably below standard.

	Age of Housewife		
	Under 40	40-59	60+
	Per Cent of Group		
Per cent rated "unsatisfactory"			
January-February	26	36	57
April-May	19	30	46
Per cent rated "marginal"			
January-February	43	38	30
April-May	42	39	33

Comparison of the use of various types of foods by the same families at two different periods indicated that use of specific foods varied greatly although there was some relationship between the levels of use in the two periods. It was concluded that a food record of a family for any particular period cannot be considered as typical of the food habits of the family.

Apparently, food rationing did not materially alter the food habits.

The morbidity study in the Eastern Health District of Baltimore was conducted by the United States Public Health Service and the Milbank Memorial Fund.

Acknowledgments are made: (1) To the Johns Hopkins School of Hygiene, especially to the Departments of Biostatistics and Epidemiology, for generous assistance and cooperation which have greatly facilitated the carrying on of the study of illness in the Eastern Health District of Baltimore; and (2) to the Baltimore City Health Department for generous assistance and cooperation.

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Appendix Table 1. Distribution of families according to frequency of use of all fruits, Eastern Health District of Baltimore, January and February, 1943.

NUMBER OF TIMES PER WEEK	PER CENT			NUMBER OF FAMILIES				
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
0	2.4	0.9	2.8	4.1	23	3	11	8
1 to 3	5.2	3.8	3.7	10.9	49	12	16	21
4 to 6	12.0	7.9	13.9	14.5	113	25	60	28
7 to 9	16.8	15.4	17.6	17.6	159	49	76	34
10 to 12	17.9	20.4	16.4	17.1	169	65	71	33
13 to 15	13.9	15.7	13.0	13.0	131	50	56	25
16 to 18	11.7	14.8	11.3	7.3	110	47	49	14
19 to 21	8.4	9.8	8.6	5.7	79	31	37	11
22 or More	11.7	11.3	12.7	9.8	110	36	55	19

Appendix Table 2. Distribution of families according to frequency of use of citrus fruits and tomatoes, Eastern Health District of Baltimore, January and February, 1943.

NUMBER OF TIMES PER WEEK	PER CENT			NUMBER OF FAMILIES				
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
0	4.2	1.5	4.2	8.8	40	5	18	17
1 or 2	7.1	3.8	7.6	11.4	67	12	33	22
3	5.1	3.8	5.1	7.3	48	12	22	14
4 or 5	14.4	12.6	15.7	14.5	136	40	68	28
6 or 7	17.7	19.5	16.0	18.6	167	62	69	36
8 or 9	15.4	17.3	15.7	11.4	145	55	68	22
10 or 11	10.3	13.2	9.5	7.3	97	42	41	14
12 or 13	8.7	10.4	7.6	8.3	82	33	33	16
14 or 15	6.1	8.2	5.4	4.1	57	26	23	8
16 or 17	4.1	3.4	5.1	3.1	39	11	22	6
18 or More	6.9	6.3	8.1	5.2	65	20	35	10

Appendix Table 3. Distribution of families according to frequency of use of milk (quarts per person per week), Eastern Health District of Baltimore, January and February, 1943.

NUMBER OF QUARTS PER WEEK	PER CENT				NUMBER OF FAMILIES			
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
0-0.4	1.5	1.0	0.5	4.7	14	3	2	9
0.5-1.4	11.0	6.6	11.8	16.6	104	21	51	32
1.5-2.4	25.6	19.5	27.3	31.6	241	62	118	61
2.5-3.4	26.9	31.1	28.2	17.1	254	99	122	33
3.5-4.4	23.6	25.2	23.1	21.7	222	80	100	42
4.5-5.4	7.3	11.0	5.6	5.2	69	35	24	10
5.5-6.4	1.6	2.5	1.2	1.0	15	8	5	2
6.5-7.4	1.6	1.6	1.4	2.1	15	5	6	4
7.5-8.4	0.3	0.6	0.2	0	3	2	1	0
8.5-9.4	0.3	0.6	0.2	0	3	2	1	0
9.5 or More	0.3	0.3	0.5	0	3	1	2	0

Appendix Table 4. Distribution of families according to frequency of use of all vegetables, Eastern Health District of Baltimore, January and February, 1943.

NUMBER OF TIMES PER WEEK	PER CENT				NUMBER OF FAMILIES			
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
0-3	1.2	0.6	1.2	2.1	11	2	5	4
4-5	3.7	0.6	4.4	7.3	35	2	19	14
6-7	6.9	3.8	6.5	12.9	65	12	28	25
8-9	9.0	6.6	9.0	12.9	85	21	39	25
10-11	14.4	16.0	12.7	15.5	136	51	55	30
12-13	17.0	20.5	17.4	10.4	160	65	75	20
14-15	14.6	18.2	13.4	11.4	138	58	58	21
16-18	13.4	14.5	14.3	9.3	126	46	62	18
19-21	8.7	9.1	8.6	8.3	82	29	37	16
22-24	5.1	5.4	4.9	5.2	48	17	21	10
25 or More	6.0	4.7	7.6	4.7	57	15	33	9

Appendix Table 5. Distribution of families according to frequency of use of green or yellow vegetables, Eastern Health District of Baltimore, January and February, 1943.

NUMBER OF TIMES PER WEEK	Total Families	PER CENT			NUMBER OF FAMILIES			
		Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
0	3.1	0.9	3.9	4.7	29	3	17	9
1 or 2	15.7	12.0	13.0	28.0	148	38	56	54
3 or 4	28.2	29.3	28.3	26.4	266	93	122	51
5 or 6	23.9	28.0	25.0	14.5	225	89	108	28
7 or 8	12.9	13.8	13.2	10.9	122	44	57	21
9 or 10	8.1	8.2	8.3	7.1	76	26	36	14
11 or 12	4.5	5.0	4.4	3.6	42	16	19	7
13 or 14	1.9	1.9	1.6	2.6	18	6	7	5
15 or 16	0.6	0.9	0.7	0	6	3	3	0
17 or 18	0.5	0	0.9	0.5	5	0	4	1
19 or More	0.6	0	0.7	1.6	6	0	3	3

Appendix Table 6. Distribution of families according to frequency of use of lean meat, Eastern Health District of Baltimore, January and February, 1943.

NUMBER OF TIMES PER WEEK	Total Families	PER CENT			NUMBER OF FAMILIES			
		Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
0	0.3	0	0	1.5	3	0	0	3
1	0.1	0	0	0.5	1	0	0	1
2 or 3	3.3	3.8	2.3	4.7	31	12	10	9
4 or 5	14.1	13.8	12.5	18.1	133	44	54	35
6 or 7	30.3	33.7	28.7	28.5	286	107	124	55
8 or 9	29.5	28.6	31.0	27.5	278	91	134	53
10 or 11	12.7	11.0	14.6	11.4	110	35	63	22
12 or 13	5.6	6.0	5.8	4.7	53	19	25	9
14 or 15	2.8	2.5	3.2	2.1	26	8	14	4
16 or 17	0.9	0.3	1.2	1.0	8	1	5	2
18 or More	0.4	0.3	0.7	0	4	1	3	0

Appendix Table 7. Distribution of families according to frequency of use of eggs (per person per week), Eastern Health District of Baltimore, January and February, 1943.

NUMBER PER WEEK	PER CENT				NUMBER OF FAMILIES			
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
0-0.4	1.4	0.3	1.2	3.6	13	1	5	7
0.5-1.4	1.4	1.2	1.4	1.6	13	4	6	3
1.5-2.4	11.9	6.9	17.4	7.8	112	22	75	25
2.5-3.4	21.3	16.7	27.5	15.0	201	53	119	29
3.5-4.4	12.1	14.5	9.7	13.5	114	46	42	26
4.5-5.4	7.8	14.8	4.6	3.6	74	47	20	7
5.5-6.4	19.1	22.6	14.4	23.8	180	72	62	46
6.5-7.4	3.7	3.8	3.0	5.2	35	12	13	10
7.5-8.4	7.0	7.2	7.6	5.2	66	23	33	10
8.5-9.4	3.3	3.5	3.2	3.1	31	11	14	6
9.5 or More	11.0	8.5	10.0	17.6	104	27	43	34

Appendix Table 8. Distribution of families according to amount of butter used (per person per week), Eastern Health District of Baltimore, January and February, 1943.

NUMBER OF POUNDS PER WEEK	PER CENT				NUMBER OF FAMILIES			
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
No Butter	2.1	2.2	1.4	3.6	20	7	6	7
Less Than .125 Lbs.	8.6	7.2	10.4	6.8	81	23	45	13
.125-.24 Lbs.	27.5	30.5	29.6	17.6	259	97	128	34
.25-.49 "	46.7	49.7	42.1	52.3	441	158	181	101
.50-.74 "	13.6	8.8	14.9	18.7	128	28	64	36
.75-.99 "	1.3	1.3	1.4	1.0	12	4	6	2
1.00 or More	0.2	0.3	0.2	—	2	1	1	—

Appendix Table 9. Distribution of families according to frequency of use of dark bread and cereals, Eastern Health District of Baltimore, January and February, 1943.

NUMBER OF TIMES PER DAY	PER CENT				NUMBER OF FAMILIES			
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
<i>Dark Bread</i>								
None	45.5	48.6	41.9	48.7	427	153	180	94
Less Than Once a Day	8.9	10.5	9.3	5.2	83	33	40	10
Once a Day	25.6	30.5	25.8	17.1	240	96	111	33
Twice a Day	6.6	3.8	8.1	7.8	62	12	35	15
3 or More Times	13.4	6.6	14.9	21.2	126	21	64	41
Unknown	—	—	—	—	5	3	2	0
<i>Dark Cooked Cereal</i>								
None	58.3	50.0	60.6	66.8	550	159	262	129
Less Than Once a Day	34.7	42.1	34.5	22.8	327	134	149	44
Once a Day	7.0	7.9	4.9	10.4	66	25	21	20

Appendix Table 10. Distribution of families according to the composite rating on food habits and the frequency of unsatisfactory ratings for use of specific foods, Eastern Health District of Baltimore, 1943.

CLASSIFICATION OF FOOD HABITS	PER CENT				NUMBER OF FAMILIES			
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
JANUARY AND FEBRUARY								
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
Satisfactory	24.9	30.8	26.0	12.5	233	98	111	24
Marginal	38.0	43.1	37.7	30.2	356	137	161	58
Unsatisfactory	37.1	26.1	36.3	57.3	348	83	155	110
Unknown					6	—	5	1
APRIL AND MAY								
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
Satisfactory	31.7	39.7	30.6	21.3	297	125	131	41
Marginal	38.6	41.6	39.0	32.6	361	131	167	63
Unsatisfactory	29.7	18.7	30.4	46.1	278	59	130	89
Unknown					7	3	4	—
JANUARY AND FEBRUARY								
TOTAL FAMILIES	100.0	100.0	100.0	100.0	943	318	432	193
Spec. Foods Unsat.								
Green and Yellow Vegetables	18.8	12.9	16.9	32.6	177	41	73	63
Citrus Fruits and Tomatoes	16.4	9.1	16.9	27.5	155	29	73	53
Milk	12.5	7.5	12.3	21.2	118	24	53	41
Meat	3.7	3.8	2.3	6.7	35	12	10	13
Eggs	2.8	1.6	2.5	5.2	26	5	11	10
APRIL AND MAY								
TOTAL FAMILIES	100.0	100.0	100.0	100.0	943	318	432	193
Spec. Foods Unsat.								
Green and Yellow Vegetables	16.0	9.4	17.8	22.8	151	30	77	44
Citrus Fruits and Tomatoes	12.3	6.3	11.1	24.9	116	20	48	48
Milk	9.2	4.7	10.0	15.0	87	15	43	29
Meat	3.5	3.1	2.5	6.2	33	10	11	12
Eggs	1.3	0.6	1.4	2.1	12	2	6	4

Appendix Table 11. Distribution of families according to the composite rating on food habits and the number of food groups with the specified lowest rating, Eastern Health District of Baltimore, January and February, 1943.

COMPOSITE RATING AND NUMBER OF FOOD GROUPS WITH SAME RATING	PER CENT			NUMBER OF FAMILIES				
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
<i>Satisfactory</i>								
Total	24.9	30.8	26.0	12.5	233	98	111	24
<i>Marginal</i>								
Total	38.0	43.1	37.7	30.2	356	137	161	58
1 Food Group	23.4	28.0	21.3	20.3	219	89	91	39
2 Food Groups	9.8	10.1	10.8	7.3	92	32	46	14
3 Food Groups	3.8	4.1	4.2	2.6	36	13	18	5
4-5 Food Groups	1.0	0.9	1.4	—	9	3	6	0
<i>Unsatisfactory</i>								
Total	37.1	26.1	36.3	57.3	348	83	155	110
1 Food Group	23.6	17.6	24.8	30.7	221	56	106	59
2 Food Groups	9.8	7.5	7.5	18.8	92	24	32	36
3 Food Groups	3.1	1.0	3.1	6.8	29	3	13	13
4-5 Food Groups	0.6	—	0.9	1.0	6	—	4	2
Unknown					6	—	5	1

Appendix Table 12. Distribution of families according to the composite rating on food habits and the number of food groups with the specified lowest rating, Eastern Health District of Baltimore, April and May, 1943.

COMPOSITE RATING AND NUMBER OF FOOD GROUPS WITH SAME RATING	PER CENT			NUMBER OF FAMILIES				
	Total Families	Age of Housewife			Total Families	Age of Housewife		
		Under 40	40-59	60 and Over		Under 40	40-59	60 and Over
TOTAL	100.0	100.0	100.0	100.0	943	318	432	193
<i>Satisfactory</i>								
Total	31.7	39.7	30.6	21.3	297	125	131	41
<i>Marginal</i>								
Total	38.6	41.6	39.0	32.6	361	131	167	63
1 Food Group	25.2	28.0	25.2	20.7	236	88	108	40
2 Food Groups	10.8	11.4	11.2	8.8	101	36	48	17
3 Food Groups	2.5	2.2	2.4	3.1	23	7	10	6
4-5 Food Groups	0.1	—	0.2	—	1	—	1	—
<i>Unsatisfactory</i>								
Total	29.7	18.7	30.4	46.1	278	59	130	89
1 Food Group	19.2	14.6	19.6	25.9	180	46	84	50
2 Food Groups	8.0	2.5	9.1	14.5	75	8	39	28
3 Food Groups	2.3	1.6	1.7	4.7	21	5	7	9
4-5 Food Groups	0.2	—	—	1.0	2	—	—	2
Unknown					7	3	4	—

APPENDIX 2

Description of qualitative classes used in rating weekly food records.

1. Rating for Milk Used Per Person Per Week

Satisfactory — 3 quarts or more

Marginal — 2 quarts

Unsatisfactory — 1 quart or less

2. Rating for Eggs Used Per Person Per Week

Satisfactory — 3 eggs or more

Marginal — 2 eggs

Unsatisfactory — 1 or no eggs

3. Rating for Times Citrus Fruits and Tomatoes Used Per Week

Satisfactory — 6 times or more

Marginal — 4 or 5 times

Unsatisfactory — 3, 2, 1, or no times

4. Rating for Times Green and Yellow Vegetables (Including Cabbage) Used Per Week

Satisfactory — 5 times or more

Marginal — 3 or 4 times

Unsatisfactory — 2, 1, or no times

5. Rating for Times Lean Meat, Fish, or Fowl Used Per Week

Satisfactory — 6 times or more

Marginal — 4 or 5 times

Unsatisfactory — 3, 2, 1, or no times

6. Composite Rating for Five Food Groups

Satisfactory — 5 ratings satisfactory

Marginal — 1 or more ratings marginal, no rating unsatisfactory

Unsatisfactory — 1 or more ratings unsatisfactory

When cheese was needed to meet the recommended allowances for milk, it was considered as a milk substitute. When the milk requirement was met with some of the cheese used, the rest of the cheese was considered as a meat substitute. All of the cheese used was considered as a meat substitute when the milk requirement was met without the use of cheese.

Procedure for using cheese as a milk substitute (based on values for calcium).

1. 1 lb. of cottage cheese = 1 pt. of milk

2. 5 ounces of cheese (other than cottage cheese) = 1 qt. of milk

Procedure for using cheese as a meat substitute (based on protein values).

1. 2 ounces of cheese (other than cottage cheese) = 1 serving of meat
2. 3 or 4 ounces of cottage cheese = 1 serving of meat

Procedure for using dried peas or beans as a meat substitute was as follows:

- 1 serving of dried peas or beans = 1 serving of meat

The DIETARY PATTERN to meet recommended allowances outlined by the Committee on Food and Nutrition, National Research Council, is as follows:

Milk, adults — 1 pt. daily; children — 1 qt. daily

Vegetables — 2 servings daily — 1 green or yellow

Fruit — 2 servings daily — 1 citrus or tomato and 1 other

Eggs — 3 or 4 times per week

Meat — 1 serving daily

Whole grain or "enriched" cereal and bread — at least half the intake

Butter or fortified oleomargarine (100-500 calories)

Potato — 1 or more servings daily

ANNOTATIONS

FAMILY HEALTH SERVICE¹

BESIDES providing interesting information about the approach, scope, and nature of the service given by the Community Service Society's Department of Educational Nursing, the study reported upon under the title FAMILY HEALTH SERVICE¹ contributes to the sum total of experimentation in evaluation of quality of public health nursing.

During the past ten years several excursions have been made into this relatively unexplored field of measurement, and a variety of quantitative criteria have been developed, some more and some less objective in character.² Methods of evaluation have been based primarily upon observation of nursing visits, supplemented by study of service records and statistical reports of agency activities; or they have relied chiefly or solely upon the review of records and statistical reports.

The method employed in this study was based upon analysis of fifty-

¹ Shetland, Margaret S.: *FAMILY HEALTH SERVICE, STUDY OF THE DEPARTMENT OF EDUCATIONAL NURSING OF THE COMMUNITY SERVICE SOCIETY*. New York Institute of Welfare Research, Community Service Society of New York, 1944, 170 pp.

² National Organization of Public Health Nursing: *SURVEY OF PUBLIC HEALTH NURSING*. New York, The Commonwealth Fund, 1934, 280 pp.

Measuring the Quality of Our Work. *Public Health Nursing*, October, 1940, 32, No. 10, pp. 608-618.

Derryberry, Mayhew: The Nurse as a Family Teacher. *Public Health Nursing*, June, 1938, 30, No. 6, pp. 357-365.

Bean, Helen: The Family as a Unit for Nursing Service. *Public Health Reports*, December 31, 1937, 52, No. 53, pp. 1923-1931.

Peterson, Rosalie I.: Health Supervision by Nurses in a Bicounty Health Department. *Public Health Reports*, December 3, 1937, 52, No. 49, pp. 1783-1793.

Downes, Jean and Price, Clara R.: A Study of Public Health Nursing Service in Tuberculous Families in the Mulberry District of New York City. *The Milbank Memorial Fund Quarterly*, January, 1939, xvii, No. 1, pp. 29-49.

And others.

two case records selected by supervisors, reinforced by a review of summaries of closed cases and by observation of nursing visits, though not to the families studied. The evaluation of public health nursing performance or "skills" is combined with that of results achieved, as reflected in the behavior and understanding of the families served.

The author believes that the method devised by her for purposes of this study needs to be tested further, a conclusion similar to that reached in previous attempts at qualitative measurement. She suggests, too, that the method may have implications for day by day use in other public health nursing services. Wider application of the criteria here employed is probably needed to determine whether they are really sufficiently objective.

Although the stated purpose of the study is "to provide the Community Service Society board and administration with a basis for a redefinition of the nursing program," the findings cannot fail to be of general interest. For instance, at a time when more than usual attention is in all parts of the country being focused upon provisions for public health nursing care of the sick, it is noteworthy that this study recommends consideration of how best to provide it when needed in the families served by the Department of Educational Nursing. On the one hand, it is concluded that "family health service should be administered through a program which gives it precedence over the sickness services and other commitments," the present policy of the Department. On the other hand, it is believed that "the giving of bedside care is an integral part of the work of the public health nurse and when this part is turned over to another agency, it cannot be related effectively to the total needs of the family."

A great many other findings of the study, such as those relating to selectiveness in intake, more accurate bases for computing cost of service, adequate qualifications of personnel for family health service, agency potentialities for student experience and for experimentation and demonstration, have administrative implications for all public health nursing agencies.

The type of health service offered by the agency here under discussion is considered unique in its concentration upon the family as a unit of work and its focus upon the positive aspects of health. The Department of Educational Nursing is unusual also in that it is a functional unit of a voluntary family welfare organization which gives other types of social and health service.

Through the detailed descriptions offered in this study report, the reader gains a clear picture of a public health nursing service functioning in a complex and rather unusual framework. It does not attempt to relate this service to other public health nursing services in the community or to draw any conclusions in regard to community planning of public health nursing.

HORTENSE HILBERT

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ESTIMATES OF FUTURE POPULATION OF THE UNITED STATES

DURING the past fifteen years or so, Thompson and Whelpton, of the Scripps Foundation for Research in Population Problems, have provided periodically revised estimates of the future population of this country on the basis of given assumptions regarding trends in fertility, mortality, and immigration. Their work has deservedly become a standard reference in discussions of future population trends. They have recently prepared their third set of estimates for the National Resources Planning Board or its antecedents. The work appears as a government publication under the title *ESTIMATES OF FUTURE POPULATION OF THE UNITED STATES, 1940-2000*.¹ The two preceding sets appeared in 1934 and 1937.²

In accounting for the somewhat early revision of the 1937 estimates the authors state that "it has become apparent that, quite apart from the war, certain changes have been taking place to alter the outlook for population in the United States. Among the new factors that are affecting the future size and composition of the population are the continuance through 1942 of the upward turn of the birth rate that began in the middle 1930's, the

¹ Thompson, Warren S. and Whelpton, P. K.: *ESTIMATES OF FUTURE POPULATION OF THE UNITED STATES, 1940-2000*. National Resources Planning Board, Washington, Government Printing Office, 1943, 137 pp. \$0.35

² (a) National Resources Board: *Estimates of Future Population by States*. Washington, 1934 (offset).

(b) National Resources Committee: *POPULATION STATISTICS. I. NATIONAL DATA*. Washington, Government Printing Office, 1937, 107 pp.

(c) National Resources Committee: *THE PROBLEMS OF A CHANGING POPULATION*. Washington, Government Printing Office, 1938, pp. 22-27.

introduction of the new chemotherapy with its promise of further reduction in mortality, the relatively favorable course of Negro mortality in recent years, the progressively greater concentration of childbearing in the earlier years of marriage, and considerable advances in the science of nutrition. These developments alone, without the intervention of the war, would have necessitated a revision of earlier estimates of future population."

Concerning their estimates, the authors once stated that they make no claim to the infallibility of "the seventh son of a seventh son." Their estimates are not presented as predictions of what will actually happen. They are rather to be regarded as projections made on the basis of given assumptions regarding trends in fertility, mortality, and immigration. In fact, the authors generally present not one but several sets of projections on the basis of varying assumptions.

Specifically, three alternative assumptions are made regarding trends in fertility: "high," "medium," and low." The same is done regarding trends in mortality. Projections are carried out for the nine possible combinations of fertility-mortality assumptions. In addition, for three of these combinations the projections are carried out with the superimposed assumption of average net gains of 100,000 per year from immigration beginning in 1945. Thus, twelve series of projections are carried through at five-year intervals from 1945 to 2000. They are given not only for the total population but also by age and sex for the native-white, foreign-white, and colored populations separately. The basic tables give figures for the 0-4 age group with and without corrections for underenumeration of children. Finally, a special series of tables indicates the deductions that should be made from the estimates if given war losses are assumed.

Among the twelve series of estimates the projected population for the year 2000 extends from 129.1 million on the basis of "low fertility—high mortality—no immigration" assumptions to 198.7 million on the basis of "high fertility—low mortality—no immigration" assumption. The foregoing, however, are to be regarded as the two extreme limits of what seems possible on the basis of current conditions. The authors give an implicit blessing to the projections based upon "medium fertility—medium mortality" trends. With the assumption of no net gains from immigration, the "medium" projections yield a population peak of 161.4 million by 1985 and a subsequent decline to 159.4 million by 2000. With the assumption of 100,000 net immigration per year, the "medium" projec-

tions yield a population peak of 167.1 million in 1995 and a slight decline to 166.6 million by 2000.

The latest estimates for the total population run somewhat higher than the 1937 estimates. For instance, under "medium fertility—medium mortality—no immigration" assumptions the latest estimate for the year 1980 is 160.9 million as compared with 153.0 million estimated in 1937. Despite the somewhat higher estimates in 1943 than in 1937, however, the essential point brought out in both series is the slowing up of population growth.

Likewise, although the projected aging of the population is a little less marked in the 1943 than in the 1937 estimates, it continues to be a conspicuous characteristic of prospective trends. On the basis of the "medium" projections by age the outlook is for continued sharp declines in the proportionate importance of children and youth under 20, not much change in the proportionate importance of the younger working force (20-44), rather marked rise in the proportion in the older working ages (45-64), and a virtual doubling, by 1980, of the proportion of aged persons (65 and over).

A few other results may be mentioned. In 1940, the foreign whites constituted 8.7 per cent of our population, and the colored, 10.2 per cent. Under the "medium" fertility and mortality assumptions the foreign-born whites dwindle to 0.1 per cent by 2000 if there is no further immigration. With the assumption of 100,000 white immigrants per year the proportionate importance of foreign-born whites in 2000 is still only 2.9 per cent. On the other hand, the "medium" projections yield slight increases in the proportionate importance of the colored population. The colored population for 2000 forms 13.8 per cent of the projected total under assumptions of no white immigration, and 13.2 per cent if 100,000 white immigrants per year are assumed.

A general statement may be in order concerning the assumptions underlying the projections. To arrive at "high," "medium," and "low" assumptions of fertility and mortality, the general procedure was somewhat as follows. The authors first examined past trends in age-specific fertility and mortality rates for various countries and states. Deciding against the use of mathematical extrapolations, the authors proceeded by estimating the probable limits of the age-specific fertility and mortality rates for the United States in the year 2000. Thus "high" and "low" assumptions were made for the terminal year and the "medium" assump-

tions were placed approximately midway between the extremes. Having established the terminal points the next task was that of interpolating between 1940 and 2000. For high mortality assumptions the logistic curve (passing through the observed rates for 1929-1930 and 1939-1940, and the estimated rates for 2000) was used. For low mortality assumptions this form of curve was used for ages under 40 but modified empirically for older ages. The age-specific fertility rates for the years between 1940 and 2000 "were obtained by interpolation along a smooth curve," the specific shape of which was apparently dictated by judgment concerning the age group involved.

Perhaps some students will be bothered because the authors began their estimates with the year 2000. They may suggest that the estimates for the terminal year are subject to largest error and therefore should flow from, rather than precede, the estimates for the intermediate years. Apparently the same premise, however, led the authors to prefer to "anchor" the terminal points at the outset. Whether one selects some function to give a desired fertility or mortality trend, or whether one selects the end points first are matters of expediency. The exercise of good judgment is essential in either procedure. The same could be said with regard to the choice between mathematical and empirical methods of interpolation.

Some students may also feel that Thompson and Whelpton are influenced unduly by current conditions in their estimates regarding future trends in fertility and mortality. The rather frequent revision of the population estimates may give some basis for such belief. Heavy reliance on recent or current trends would be all to the good if the purpose of the projections were simply that of interpreting the force of current vital rates in terms of the future size and composition of the population. To make long-range projections on the basis of short-range observations, however, would seem to weaken the predictive value.

The foregoing criticism, however, is of small moment in view of the immense value of the projections. By virtue of the work of Thompson and Whelpton in this field, many laymen and public officials, as well as demographers, have gained an insight into the future dynamics of population. The essential story of the slowing up of our population growth and of the changes in age structure is not greatly altered by the periodic revision of the estimates.

CLYDE V. KISER

OLD AGE IN NEW YORK CITY¹

A FEW compact tables in the appendix of this report disclose the cardinal facts that set the stage for the study. There were, in New York City in 1940, 414,419 persons 65 years of age or older. There were less than half that many ten years earlier in the same territory. The increase in the oldest age group, moreover, is relatively far greater than that of the group nearer 65. The number of persons 75 years and over rose by 73 per cent from 1930 to 1940, in contrast to a rise of just under 50 per cent for those 65-69 years of age. And as any demographer would have guessed, women outlive and out-age the men in this group as they do in general. To the student of population movements, this is not surprising; the citizen at large has had some inkling of it. The aged themselves, some pioneers in social planning, and a few statesmen and political leaders discovered this trend some years ago, hence the old age assistance and old age insurance laws on the Federal statutes. Apparently least responsive, and certainly least effective in meeting the changing situation of aged persons have been the various types of institutions designed to cater to their needs. The present study is one of a series of attempts from many directions to bring home to these institutions and to their supporting public that, while they can do nothing to stop, or change, the trend of an aging population, they can and should do something about assuring them decent, satisfying, and civilized conditions.

What happens to these 400,000-odd persons 65 years and over? The more important phases of this question are do they make a living, are they well, are they happy, are they socially useful. Some tentative answers only can be offered by the data quoted or discovered in the study. Some 67,000 of the 414,000-odd, or over 16 per cent of the total, are not self-supporting — others may not be. Of those depending on outside assistance, roughly 18 per cent are cared for in the traditional way, in institutions for the aged — mostly under voluntary rather than public auspices (9,000 out of 12,000). The bulk are recipients of public old age assistance and live in the community. The study undertaken by the Welfare Council, and analyzed by Mrs. Brunot offers a modest contribution of facts, but a very substantial indication of the direction in which more study and particularly more work must be planned. The study

¹ Brunot, Helen Hardy: OLD AGE IN NEW YORK CITY. New York, Welfare Council of New York City, 126 pp.

makes no claim of speaking for the aged as a group — the 414,000-odd. At best it relates only to those who have found it necessary to seek aid outside their immediate family group. Within this category, the information obtained is based on data relating to 1,935 persons only, out of a total of 3,106 requests for advice of one kind or another made to the Bureau of the Aged of the Welfare Council during a stated period. The group is, in a statistical sense, not a "sample" either of the aged group as a whole or of those dependent on assistance, or, for that matter, those cared for in institutions. It is a sample in the sense of "illustration" only, of those aged, who presumably are not financially secure, or safe in their prospects as to health, human companionship, or usefulness. Within this illustrative group it is a study of the quantitative distribution of problems of a qualitative nature, that characterize the condition of the aged in New York City. It is part of the cumulative knowledge and of the growing efforts to see in an honest quantitative way the task that society, and particularly social work faces in this demographic perspective.

Neither the findings, nor the recommendations are revolutionary. For that very reason no summary can provide a substitute for careful reading on the part of those who may profit by the practical nature of the study. It covers the health and medical problems of the aged; their vocational capacities and needs; institutional, hospital, and convalescent facilities. It confronts the responsible citizen and particularly the social worker with the fact that we have failed to give to the needs of the aged the required thought, devotion, and time. On the theory that the young and those in the prime of life are the important social investment, we have escaped this increasing responsibility for the aged. Or is it because they are not interesting cases?

PHILIP KLEIN

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TUBERCULOSIS MORTALITY IN THE UNITED STATES 1939-1941¹

THE recent release of detailed mortality data by the Bureau of the Census and the population data available from the 1940 Census made

¹ Yerushalmy, J., Hilleboe, H. E., and Palmer, C. E.: Tuberculosis Mortality in the United States, U. S. *Public Health Reports*, 58, No. 40, October 1, 1943.

possible a comprehensive study of the tuberculosis mortality in the United States for the years 1939-1941. The mortality represents deaths with tuberculosis as the primary cause, and the rates are presented according to sex, age, race, and place of residence.

The tuberculosis death rate for males (53.6) was 41 per cent greater than the rate for females (38.1). This excess of male deaths over female deaths was greater for tuberculosis than for all other deaths. Tuberculosis mortality for Negroes was much higher than that for whites, and the mortality for other nonwhites was about twice that for Negroes.

No important changes in the age curve of mortality were evident. Age-specific mortality rates for all forms of tuberculosis revealed an increase in the death rate with age for whites, but for nonwhites a peak in the mortality was reached in the 20-24 age group for females, and in the 45-54 age group for males, followed by a steady decline for both sexes at the older ages.

Wartime shifting of population is making the evaluation of tuberculosis mortality trends increasingly difficult in certain areas. The authors suggest that the ratio of tuberculosis deaths to all deaths within specific age groups for racial groups by sex may serve as an index for comparison of the trend in tuberculosis mortality from year to year, since this ratio is independent of unknown population data. It is pointed out, however, that a serious increase in deaths due to some other disease may give a spurious decline in the proportion of deaths due to tuberculosis.

In the period 1939-1941, the proportion of all deaths that were due to tuberculosis for both sexes and races was found to be negligible at very early ages; the proportion increased rapidly to a peak between ages 15-30 and steadily declined thereafter. The contribution of tuberculosis deaths to all deaths was most prominent in nonwhite females in the age groups 15-19 and 20-24; 38 per cent of all deaths in both these groups was due to tuberculosis.

Respiratory tuberculosis mortality rates were found to vary inversely, and to a marked degree, with the size of the city, among males, while the place of residence did not appear to affect the rates for females to any important degree. This was interpreted as possibly indirect evidence of the relationship between tuberculosis and industrialization.

In view of the increased number of cases of tuberculosis being uncovered by mass chest x-rays of inductees and war workers, and the danger of an increase in incidence of the disease due to wartime conditions, it

was thought desirable to study the trend of the mortality rate of tuberculosis over the past decades. Such a trend may be used as a yardstick for future accomplishments.

The trend of mortality at specific ages is of interest. In the period 1939-1941 compared with 1919-1921 the relative decline in the rates for white persons was greatest for both sexes under 25 years of age (from 75 to 81 per cent); the percentage decrease was somewhat greater for females than males at ages 10-14, and greater for males than for females at ages 20-24. After age 25 the decline in mortality of females remained relatively high with decreases in the rates of from 72 to 59 per cent up to age 75. On the other hand, for males the decreases were similar to those for females only up to age 34. At ages 35-74, where mortality among males is relatively high, the decreases in the death rates ranged from 40 to 62 per cent. It may be suggested that this failure of the male mortality to decline as rapidly as the female mortality at these ages is worthy of the attention of those engaged in the control of tuberculosis.

In terms of lives saved annually, the downward trend in age-specific mortality rates can be appreciated if the 60,428 deaths from tuberculosis in 1940 are compared with the 156,520 that might have been expected were the 1920 rates still operating.

RUTH ZWERLING

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